1	For a given transformer volte/turn for primary and secondary winding is			
	A	different	B	same
	C	depends on transformer design	D	depends on load
2	No load power factor of transformer compared to full load power factor is			
	A	more	B	less
	C	same	D	depends on load
3	In transformer short circuit test the current Isc is			
	A	equal to rated current	B	more than rated current
	C	less than rated current	D	depends on transformer design
4	For a step up transformer secondary resistance reffered to primary is			
	A	less than secondary resistance	B	equal to secondary resistance
	C	more than secondary resistance	D	depends on transformer design
5	No load efficiency of transformer is _____ than full load efficiency			
	A	greater	B	lesser
	C	depends on transformer design	D	equal
6	Which of the following loss varies with the load			
	A	hystresis loss	B	eddy current loss
	C	copper loss	D	core loss
7	In auto transformer if power transferred inductively and conductively are same, the ratio of output/input voltage is			
	A	1	B	0.7
	C	0.5	D	none of above
8	kVA rating of open delta connected transformer is _____ % kVA rating of delta/delta connection			
	A	50	B	70.7
	C	57.7	D	75.7
9	Scott connection is used for			
	A	3-phase to 2-phase conversion	B	to achieve higher effciency
	C	to save copper	D	to reduce harmonics
10	In scott connected transformer number of turns in the primary winding of teaser transformer is _____ % of number of primary turns of main transformer.			

10	A	86.6	B	57.7
	C	14.4	D	33.3
11	The mechanical angle is _____ electrical angle			
	A	always less than	B	greater than or equal to
	C	equal to	D	less than or eaual to
12	In winding design, the angle of chording (β) is nearly equal to			
	A	45 degree	B	60 degree
	C	30 degree	D	90 degree
13	Squirrel cage induction motor has constant			
	A	slip	B	stator current
	C	rotor resistance	D	speed at all load
14	Frequency of rotor emf in induction motor is around			
	A	same as stator frequency	B	50%
	C	5 % or below	D	30%
15	Slip at maximum torque depends on			
	A	rotor resistance and reactance	B	stator reactance
	C	load current	D	stator resistance
16	Calculate torque developed by the 3-phase, 5 H.P., 4 pole induction motor runs at 1500 rpm			
	A	23 N-m	B	21 N-m
	C	10 N-m	D	0 N-m
17	Induction generator has			
	A	negative speed	B	negative slip
	C	negative voltage	D	negative current
18	Magnetizing current for induction motor compared to transformer is			
	A	equal	B	more
	C	less	D	depends on load
19	Efficiency of induction motor compared to transformer is			
	A	equal	B	more
	C	less	D	depends on load

20	Stator core loss of squirrel cage induction motor compared to rotor core loss is			
	A	equal	B	more
	C	less	D	depends on load
21	No load test of induction motor is carried out to compute			
	A	stator resistance	B	rotor resistance
	C	magnetizing reactance	D	rotor reactance
22	Short circuit test of induction motor is carried out to compute			
	A	stator resistance	B	rotor resistance
	C	magnetizing reactance	D	stator reactance
23	Auto transformer starter gives the same effect as star/delta strater if its turn ratio			
	A	0.5	B	0.67
	C	o.66	D	0.577
24	Rotor resistance starter is used to obtain			
	A	increased starting torque	B	decrease starting current
	C	decrease starting loss	D	increase efficiency
25	Plugging is a phenomenon to			
	A	braking the motor	B	to accelerate the motor
	C	to run IM as generator	D	to start the motor
26	The slip during plugging operation is given by			
	A	1-s	B	2+s
	C	1+s	D	2-s
27	During regenerative breaking			
	A	rotating magnetic field is reversed	B	slip is positive
	C	torque is positive	D	slip is negative
28	In which of the following case, the rotating magnetic field is reversed?			
	A	regenerative breaking	B	plugging
	C	dynamic breaking	D	forward motoring
29	Which of the following breaking method save energy?			
	A	regenerative breaking	B	plugging

	C	dynamic breaking	D	none of above
30	Electromagnetic torque developed by the motor is _____ compared to shaft torque.			
	A	less	B	same
	C	depends on motor design	D	more
31	An 8 pole, 50 Hz, 3-phase IM is loaded to a poing where pull out torque will occur. The rotor resistance per phase is 0.3 ohm and motor stalls at 650 rpm. The rotor reactance at stand still is			
	A	2 ohm	B	1.25 ohm
	C	3.15 ohm	D	2.25 ohm
32	An 8 pole, 50 Hz, 3-phase IM is loaded to a poing where pull out torque will occur. The rotor resistance per phase is 0.3 ohm and motor stalls at 650 rpm. The slip when motor stalls is			
	A	1	B	0
	C	13.33%	D	10.33%
33	An 8 pole, 50 Hz, 3-phase IM is loaded to a poing where pull out torque will occur. The rotor resistance per phase is 0.3 ohm and motor stalls at 650 rpm. The rotor frequency at maximum torque point is			
	A	3.33%	B	4.44%
	C	5.55%	D	6.66%
34	In an ideal transformer no load primary current I0			
	A	lags behind V1 by 90 degree	B	is in the phase with V1
	C	leads V1 by 90 degree	D	lags V1 by 45 degree
35	Transformer cores are laminated in order to			
	A	simplify its construction	B	minimize eddy current loss
	C	reduce cost	D	reduce hysterisis loss
36	A transformer has negative voltage regulation when its load PF is			
	A	zero	B	unity
	C	lagging	D	leading
37	Essential condition for parallel operation of two single phase transformer is that they should have same			
	A	polarity	B	kVA rating
	C	voltage ratio	D	% impedance

38	Saving in copper achieved by converting a 2 winding transformer in to an auto transformer is determined by			
	A	voltage transformation ratio	B	load on secondary
	C	quality of core material	D	size of transformer core
39	kVA rating of ordinary transformer is increased when connected as an auto transformer because			
	A	transformation ratio increased	B	secondary voltage increased
	C	energy is transferred both inductively and conductively	D	secondary current increased
40	At light load transformer efficiency is less because			
	A	secondary output is low	B	transformer losses are high
	C	fixed loss is high compared to output	D	copper loss is small
41	Which of the following connection is best suited for 3-ph, 4 wire system			
	A	delta-delta	B	star-star
	C	delta-star	D	star-delta
42	A T-T transformer can not be parallel with _____ transformer			
	A	V-V	B	star-delta
	C	star-star	D	delta-delta
43	Following test should be conducted to find out relative polarity of transformenr terminals			
	A	no load test	B	back to back test
	C	phasing out test	D	none of above
44	In power transformer tappings are provided on			
	A	high voltage side	B	low voltage side
	C	In middle of both the windings	D	both high and low voltage side
45	Main advantage of auto transformer over two windings transformer is that			
	A	it needs no cooling	B	it uses only one winding
	C	core losses are reduced	D	it has simple construction
46	Material commonly used in making transformer core is			
	A	cast iron	B	mild steel
	C	high silicom steel	D	high carbon steel

47	If we impress a dc voltage of 230 V on an unloaded 230 V, 50 Hz transformer it wi			
	A	give high secondary voltage	B	burn out
	C	give secondary voltage as per K	D	none of these
48	Short circuit voltage of a transformer mainly depend on			
	A	ohmic resistance of primary	B	ohmic resistance of secondary
	C	magnitude of leakage flux	D	cross sectional area of core
48	Transfer of electric power from primary to secondary in a transformer takes place			
	A	electrically	B	magnetically
	C	electro-magnetically	D	conductively
49	Resistance of low voltage side of transformer compared to high voltage side is			
	A	less	B	equal
	C	more	D	depens on design
50	As load in a transformer increases, mutual flux linkage in core			
	A	increases	B	decreases
	C	not change	D	first increase then decrease
51	Size of transformer core depends on			
	A	frequency	B	flux density of core
	C	cross sectional area of core	D	both (A) & (B)
52	Distribution transformers are designed to have maximum efficiency nearly			
	A	at full load	B	at 50 % of full load
	C	at no load	D	none of these
53	Distribution transformers have good all day efficiency due to			
	A	low copper loss	B	low iron loss
	C	low copper and iron loss	D	none of these
54	Buchholz relay is			
	A	voltage sensitive device	B	current sensitive device
	C	frequency sensitive device	D	gas actuated device
55	A three phase transformer with delta connected high voltage side and star connected low voltage side gave the following displacement			
	A	Dy1 or Dy11	B	Dy0 or Dy6

	C	Dy1 only	D	Dy11 only
56	Skewing in squirrel cage induction motor is not used for			
	A	it prevents cogging	B	it increases starting torque
	C	it produces uniform torque	D	it reduces hum
57	In 3-ph induction motor relative speed of stator flux with respec to _____ is zero.			
	A	stator winding	B	rotor
	C	space	D	rotor flux
58	When load is placed on 3-phase induction motor its slip			
	A	increases	B	decreases
	C	remains constant	D	does not depend on load
59	In squirrel cage IM if per phase applied voltage reduced to half, its starting torque becomes _____ of starting torque with full oltace			
	A	0.5	B	0.75
	C	0.25	D	un altered
60	Fractional slip of an induction motor is the ratio			
	A	rotor cu loss/rotor input	B	rotor cu loss/rotor output
	C	staror cu loss/stator input	D	staror cu loss/stator output
61	Efficiency and power factor of squirrel cage IM increase in proportion to			
	A	speed	B	voltage
	C	mechanical load	D	slip
62	In equivalent circuit of induction motor, equivalent load resistance is			
	A	R2/s	B	sR2
	C	R2 (1-s)/s	D	R2(1-s)
63	At crawling the machine running stably at speed as low as			
	A	1/3 of synchronous speed	B	1/5 of synchronous speed
	C	1/7 of synchronous speed	D	none of above
64	In a double cage induction motor inner cage has			
	A	low R and low X	B	low R and high X
	C	high R and low X	D	high R and high X
	In induction generator slip is			

65	A	zero	B	positive
	C	negative	D	may have any value
66	Torque/slip curve of an 3-phase IM is			
	A	hyperbola	B	parabola
	C	flat	D	rectangular hyperbola
67	In case of IM reactance/phase as compared to resistance/phase is			
	A	almost same	B	slightly large
	C	very small	D	large
68	For a given 3-phase IM if torque and speed both are negative then it is			
	A	forward motoring mode	B	breaking mode
	C	reverse motoring mode	D	none of above
69	EMF induced in rotor of an IM is proportional to			
	A	voltage applied to the stator	B	relative velocity between flux and conductors
	C	slip	D	both (A) & (B)
70	Starting torque of an IM is maximum when			
	A	rotor resistance equals rotor reactance	B	rotor resistance is twice rotor reactance
	C	rotor resistance is half rotor reactance	D	rotor resistance is 1.41 times rotor reactance
71	In 3-ph induction motor at close to synchronous speed torque is proportional to			
	A	load current	B	power factor
	C	slip	D	rotor resistance
72	In 3-ph induction motor at low speed torque is proportional to			
	A	s	B	1/s
	C	load current	D	rotor resistance
73	In 3-phase squirrel cage IM at pull out torque, rotor power factor is			
	A	0.5	B	1
	C	0.707	D	0.866
74	In 3-phase IM at rated frequency applied voltage reduces to half, slip when maximum torque occurs will be			
	A	same	B	half

	C	one fourth	D	none of above
75	In 3-phase IM at rated applied voltage if rotor resistance is increased , slip when maximum torque occurs will be			
	A	same	B	increase
	C	decrease	D	none of above
76	In constant torque region of 3-phase IM torque-speed characteristics, the power output is proportional to			
	A	constant	B	depends on load
	C	depends on speed	D	none of above
77	In constant power region of 3-phase IM torque-speed characteristics, the torque is proportional to			
	A	speed	B	slip
	C	1/speed	D	1/slip
78	In constant power region of 3-phase IM torque-speed characteristics, if frequency increases slip			
	A	does not alter	B	decreases
	C	increases	D	none of above
79	In constant power region of 3-phase IM torque-speed characteristics, if frequency increases flux			
	A	does not alter	B	decreases
	C	increases	D	none of above
80	In constant power region of 3-phase IM torque-speed characteristics, if frequency increases voltage			
	A	does not alter	B	decreases
	C	increases	D	none of above
81	Stator of 3-phase IM has 3 slots per pole per phase. If supply frequency is 50 Hz, calculate the speed of rotating stator flux			
	A	1000 rpm	B	500 rpm
	C	1500 rpm	D	1440 rpm
82	Stator of 3-phase IM has 3 slots per pole per phase, calculate number of stator pole pairs.			
	A	1	B	6
	C	2	D	3

83	A 3-phase IM is supplied from 50 Hz system. It runs at speed of 1440 rpm and slip equal to 4 %. Calculate number of pole pairs.			
	A	1	B	6
	C	2	D	3
84	A 3-phase IM is supplied from 50 Hz system. It runs at speed of 1440 rpm and slip equal to 4 %. Calculate rotor frequency.			
	A	50 Hz	B	0 Hz
	C	4 Hz	D	6 Hz
85	A 3-phase IM is supplied from 50 Hz system. It runs at speed of 600 rpm. Calculate rotor frequency.			
	A	20 Hz	B	30 Hz
	C	25 Hz	D	50 Hz
86	Rotor emf of 3-phase, 6 pole, 400 V, 50 Hz IM alternates at 3 Hz. Calculate slip.			
	A	4%	B	6%
	C	5%	D	8%
87	Rotor emf of 3-phase, 6 pole, 400 V, 50 Hz IM alternates at 3 Hz. Calculate rotor copper loss if full load input to rotor is 111.9 kW.			
	A	2238 W	B	6715 W
	C	2300 W	D	6900 W
88	If rotor power factor of 3-phase IM is 0.866, displacement between stator magnetic field and rotor magnetic field will be			
	A	30 degree	B	150 degree
	C	90 degree	D	120 degree
89	If voltage of an IM is decreased by 10 %, torque is reduced by			
	A	80%	B	10%
	C	5%	D	20%
90	If synchronous speed of 3-phase IM is 1000 rpm. The speed of 5th space harmonics will be			
	A	1000 rpm	B	6000 rpm
	C	5000 rpm	D	200 rpm
91	If synchronous speed of 3-phase IM is 1000 rpm when supplied by 50 Hz system. The frequency of 5th space harmonics will be			
	A	10 Hz	B	20 Hz

	C	40 Hz	D	5 Hz
92	If rotor of 3-phase wound rotor IM supplied by 50 Hz is driven by external means at speed equals to synchronous speed of the machine in opposite direction, the frequency of voltage across slip ring will be			
	A	50 Hz	B	25 Hz
	C	75 Hz	D	100 Hz
93	If rotor of 3-phase wound rotor IM is driven by external means at speed equals to synchronous speed of the machine in opposite direction, the slip will be			
	A	0.5	B	1
	C	2	D	2.5
94	Find the rated torque of 3.3 kW, 3-phase, 400 V, 50 Hz IM runs at rated speed of 1440 rpm.			
	A	15.6 N-m	B	24.5 N-m
	C	21.9 N-m	D	29 N-m
95	A starting torque of 80 N-m is deeloped in an IM by auto transformer starter with a tapping of 30 %. If tapping is changed to 60 %, starting torque will be			
	A	20 N-m	B	40 N-m
	C	160 N-m	D	320 N-m
96	A 440 V, 50 Hz, 4 pole squirrel cage IM develops a torque of 150 N-m at speed of 1200 rpm. If the stator supply frequency is reduced by 1/2, new speed to develop the same torque is			
	A	450 rpm	B	750 rpm
	C	1050 rom	D	1200 rpm
97	Rotor resistance and standstill reactance of 3-phase IM are respectively 0.02 ohm and 0.09 ohm per phase. At normal voltage full load slip is 3 %, power factor will be			
	A	0.49	B	0.69
	C	0.99	D	0.89
98	If slip of IM reduces, the power factor			
	A	increase	B	decrease
	C	not change	D	depends on design
99	A 3-phase 4 pole, 50 Hz 7.46 kW IM has at rated voltage and frequency, a starting torque of 160 % and a maximum torque of 200 % of full load torque. Calculate load speed.			

	A	1440 rpm	B	1485 rpm
	C	1465 rpm	D	1475 rpm
100	A 3-phase 12 pole, 50 Hz 100 kW star connected IM has full load slip is 1.8 % and full load power factor 0.85. Stator copper loss is 2.44 kW, Iron loss 3.5 kW and rotational losses -1.2 kW. Calculate line current.			
	A	20.4 A	B	22.4 A
	C	40 A	D	30.4 A
101	A 3-phase 12 pole, 50 Hz 100 kW star connected IM has full load slip is 1.8 % and full load power factor 0.85. Stator copper loss is 2.44 kW, Iron loss 3.5 kW and rotational losses -1.2 kW. Calculate rotor copper loss.			
	A	1.955 kW	B	1.855 kW
	C	2.015 kW	D	2.5 kW
102	A 3-phase 12 pole, 50 Hz 100 kW star connected IM has full load slip is 1.8 % and full load power factor 0.85. Stator copper loss is 2.44 kW, Iron loss 3.5 kW and rotational losses -1.2 kW. Calculate efficiency.			
	A	93.70%	B	91.70%
	C	92.70%	D	94.70%
103	Concentric windings are used in core type transformer with			
	A	HV winding placed next to core	B	LV winding placed next to core
	C	LV winding on the outer side	D	HV winding on the outer side
104	Cross over windings are used for			
	A	HV winding of small rating transformer	B	LV winding of small rating transformer
	C	HV winding of large rating transformer	D	none of above
105	Transformer oil is used as			
	A	insulant only	B	coolant only
	C	both insulant and coolant	D	none of above
106	A 3000/300 V transformer takes 0.8 A at power factor of 0.4 on open circuit. Magnetizing current of the transformer will be			
	A	0.73 A	B	0.53 A
	C	0.33 A	D	0.83 A
107	A 3000/300 V single phase transformer takes 0.8 A at power factor of 0.4 on open circuit. Find the core loss resistance			
	A	937.5 ohm	B	947.5 ohm

	C	537.5 ohm	D	815.5 ohm
108	A 3000/300 V single phase transformer takes 0.8 A at power factor of 0.4 on open circuit. Find the magnetizing reactance			
	A	411 ohm	B	311 ohm
	C	523 ohm	D	513 ohm
109	Auto transformer supplied a load of 8 kW at 115 V at unity power factor. If primary voltage is 345 V, power transferred to load inductively will be			
	A	4.44 kW	B	3.33 kW
	C	3.78 kW	D	5.33 kW
110	Two transformers connected in open delta supply a 500 kVA balanced load operating at 0.866 power factor lagging. Load voltage is 440 V. kVA supplied by each transformer will be			
	A	131.7 kVA	B	288.7 kVA
	C	181 kVA	D	251 Kva
111	Two transformers connected in open delta supply a 500 kVA balanced load operating at 0.866 power factor lagging. Load voltage is 440 V. kW supplied by each transformer will be			
	A	P1=288.7 kW and P2=144.35 kW	B	P1=218.7 kW and P2=144.35 kW
	C	P1=218.7 kW and P2=114.35 kW	D	P1=318.7 kW and P2=214.35 kW
112	A 230/460 V transformer has a primary resistance of 0.2 ohm and reactance of 0.5 ohm and corresponding values for secondary are 0.75 ohm and 1.8 ohm respectively. Find secondary terminal voltage when supplying 10 A and 0.8 power factor lagging			
	A	434.8 V	B	244.8 V
	C	424.8 V	D	342.8 V
113	Calculate % voltage drop of transformer with a % resistance of 2.5 ohm and % reactance of 5 ohm of rating 500 kVA when it is delivering 400 kVA at 0.8 power factor lagging			
	A	2%	B	4%
	C	3%	D	5%
114	A transformer has copper loss of 1.5 % and reactance of 3.5 % when tested on load. Calculate its full load regulation at unity power factor.			
	A	3.32%	B	0.83%
	C	1.56%	D	-0.83%
	A transformer has copper loss of 1.5 % and reactance of 3.5 % when tested on load. If its full load regulation is 3.32 % find its power factor.			

114	A	0.85 lagging	B	0.8 leading
	C	0.85 leading	D	0.8 lagging
115	A transformer has copper loss of 1.5 % and reactance of 3.5 % when tested on load. If its full load regulation is -0.83 % find its power factor.			
	A	0.85 lagging	B	0.8 leading
	C	0.85 leading	D	0.8 lagging
116	Auto transformer supplied a load of 8 kW at 115 V at unity power factor. If primary voltage is 345 V, power transferred to load conductively will be			
	A	3.67 kW	B	2.67 kW
	C	3.78 kW	D	5.33 kW
117	Primary and secondary voltage of autotransformer are 500 V and 400 V repectively. When secondary current is 100 A, calculate % saving of copper			
	A	70%	B	80%
	C	75%	D	78%
118	Calculate core area of 500 kVA , 1-phase, 50 Hz, 6600/5000 V auto transformer, emf per turn = 8 V, maximum flux density 1.3 Wb/square meter			
	A	234 sq cm	B	337 sq cm
	C	277 sq cm	D	289 sq cm
119	Calculate number of turns in HV and LV winding for a given 500 kVA , 1-phase, 50 Hz, 6600/5000 V auto transformer, emf per turn = 8 V, maximum flux density 1.3 Wb/square meter			
	A	800, 606	B	825, 625
	C	425, 625	D	400, 600
120	What should be kVA rating of each transformer in V-V bank when three phase balanced load is 40 Kva?			
	A	19	B	28
	C	37	D	23
121	A 10 Kva, 400V/200 V single phase transformer with a resistance of 3 % and reactance of 6 % is supplying a current of 50 A to a resistive load, voltage across load is			
	A	176 V	B	188.7 V
	C	194 V	D	205.6 V
	In a transformer if iron losses and copper losses are 40.5 kW and 50 kW respectively, then at what fraction of load will efficiency be maximum?			

122	A	0.9	B	0.86
	C	0.56	D	0.7
123	Capacitor start and run 1-phase IM is basically a			
	A	1-ph IM	B	2-ph IM
	C	1-ph reluctance IM	D	3-ph IM
124	Direction of rotation of a 1-ph IM can be reversed by			
	A	reversing leads of main wdg	B	reversing leads of auxiliary wdg
	C	reversing supply leads	D	any of (A) or (B)
125	A capacitor start and run IM compared to capacitor start IM has			
	A	more over load capacity	B	good p.f. and high efficiency
	C	quiter operation	D	all of these
126	In a 1-phase IM starting torque may be obtained with auxiliary winding connected in series with			
	A	resistor	B	capacitor
	C	inductor	D	R and L
127	In 1-phase motors almost constant torque during starting is produced by			
	A	split phase motor	B	reluctance motor
	C	hysteresis motor	D	shaded pole motor
128	1-phase motor which does not have any winding on its rotor			
	A	split phase motor	B	reluctance motor
	C	hysteresis motor	D	shaded pole motor
129	In a universal motor normally ratio of width of brush to width of commutator segment is			
	A	02:01	B	04:01
	C	06:01	D	01:01
130	Speed control of universal motor is achieved by			
	A	varying field flux with tapped field winding	B	Applying variable voltage by means of auto transformer
	C	Connecting rehostat in series	D	all of the above
131	Starting winding of a single phase motor is placed in the			
	A	rotor	B	stator

	C	armature	D	field
132	If a dc series motor is operated on ac supply it will			
	A	have poor efficiency	B	have poor power factor
	C	spark excessively	D	all of the above
133	1-phase IM has a characteristic that it			
	A	is self starting	B	is not self starting
	C	requires only one winding	D	none of above
134	A repulsion motor is equipped with			
	A	commutator	B	slip rings
	C	a reppler	D	neither (A) nor (B)
135	Compensating winding is employed in an ac series motor in order to			
	A	compensate for decrease in field flux	B	reduce effect of armature reaction
	C	increase total torque	D	reduce sparking at brushes
136	Capacitor in a capacitor start induction run ac motor is connected in series with _____ winding.			
	A	starting	B	running
	C	compensating	D	squirrel cage
137	If starting winding of 1-phase IM is left in the circuit, it will			
	A	draw excessive current	B	run slower
	C	run faster	D	spark at light loads
138	Starting torque of a capacitor start induction run motor is directly related to angle α between its two winding current by relation			
	A	cosα	B	sinα
	C	tanα	D	sinα/2
139	Direction of rotation of a hysteresis motor is determined by			
	A	retentivity of rotor material	B	amount of hysterisis loss
	C	permeability of rotor material	D	position of shaded pole with respect to main pole
140	After starting winding of a 1-phase IM is disconnected from supply, it continues to run on _____ winding.			
	A	rotor	B	compensating

	C	field	D	running
141	If a single phhase IM runs slower than normal, more likely, defect is			
	A	improper fuses	B	shorted running winding
	C	open starting winding	D	worn bearings
142	A permanent split 1-phase capacitor motor does not have			
	A	centrifugal switch	B	starting winding
	C	squirrel cage rotor	D	high power factor
143	An outstanding feature of a universal motor is its			
	A	highest output kW/kg ratio	B	slow speed at all loads
	C	constant speed at all loads	D	good performance on dc
144	A single phase transformer has a turn ratio of 6. Resistance and reactance of the primary winding are 0.9 ohm and 5 ohm respectively and those of secondary are 0.03 ohm and 0.13 ohm respectively. If 330 V at 50 Hz be applied to HV winding with LV winding short circuited, find current in LV winding.			
	A	100 A	B	200 A
	C	400 A	D	300 A
145	A single phase transformer has a turn ratio of 6. Resistance and reactance of the primary winding are 0.9 ohm and 5 ohm respectively and those of secondary are 0.03 ohm and 0.13 ohm respectively. If 330 V at 50 Hz be applied to HV winding with LV winding short circuited, find power factor.			
	A	0.2	B	0.3
	C	0.5	D	0.7
146	A single phase transformer has a maximum efficiency of 90 % at full load and unity power factor. Efficiency at half load and unity power factor is			
	A	87.80%	B	88.26%
	C	88.90%	D	88.25%
147	No load test on 3-phase IM was conducted at different supply voltages and a plot of input power versus voltage was drawn. This curve was extrapolated to intersect y-axis. The intersection point yiiels			
	A	core losses are reduced	B	stator copper loss
	C	stray load loss	D	friction & windage loss
	For a given stepper motor following torque has the highest numerical value.			

148	A	detent torque	B	pull in torque
	C	pull out torque	D	holding torque
149	The direction of rotation of a 3-phase IM is clockwise when it is supplied with 3-phase sinusoidal supply having phase sequence A-B-C. For counterclockwise rotation of the motor, the phase sequence of the power supply should be			
	A	B-C-A	B	C-A-B
	C	any of (A) or (B)	D	A-C-B
150	Magnetizing reactance of transformer compared to primary and secondary leakage reactance (refered to primary) is			
	A	very small	B	almost equal
	C	very large	D	depends on design
151	In a transformer zero voltage regulation at full load is			
	A	not possible	B	possible at unity p.f.
	C	possible at leading p.f.	D	possible at lagging p.f.
152	The variation of flux in core of the transformer from no load to 50% load is			
	A	half than rated	B	one forth than rated
	C	double than rated	D	zero
153	In the vector diagram of transformer the direction of Self induced E.M.F. in primary vector [E1] & Mutually induced E.M.F. in secondary vector [E2] is			
	A	Same	B	Shifting 90 degree clockwise
	C	Opposite	D	Shifting 90 degree Anti clockwise
154	If the transformer is applied Rated supply voltage with double frequency, then it's hysteresis losses will be			
	A	constant	B	Increased by double than rated
	C	Reduced to half than rated	D	Increased by four times than rated
155	If the transformer is applied rated supply voltage with double frequency, then it's Eddy current losses will be			
	A	constant	B	Increased by double than rated
	C	Reduced to half than rated	D	Increased by four times than rated
156	At No load condition of transformer , Iron losses are			
	A	Equal to copper losses	B	More than copper losses
	C	Less than Copper losses	D	none of above

157	IF Transformer 's efficiency is maximum at 60% of full load , then at rated full load it's copper losses are			
	A	Equal to Iron losses	B	More than Ironlosses
	C	less than Iron losses	D	none of above
158	To design a 2MVA , 11KV/ 66KV step up transformer has 2 voltge per turn [E_t],at primary side. So at secondary side it will be			
	A	2	B	3
	C	6	D	36
159	Transformer mainly transfer			
	A	Voltage	B	Current
	C	Power	D	losses
160	The Ratting of two parellel connected tranformer is inversely proportional to			
	A	Their Secondary resistance	B	Their secondary current
	C	Their secondary Voltage	D	Their percentage Impedance
161	TheResistance of step up transformer			
	A	Higher at secondary side than primary side	B	Higher at primary side than secondary side
	C	is equal at both the sides	D	none of above
162	Torque angel δid define as angel between			
	A	Resultant field axis & stator field axis	B	rotor field axis & stator field axis
	C	Resultant field axis & rotor field axis	D	Mutual field axis & stator field axis
163	A pole pitch in Electrical Machine is			
	A	Equal to 180^0 Electrical	B	Greater than 180^0 Electrical
	C	Less than 180^0 Electrical	D	Equal to 180^0 Mechanical
164	The interaction torque depends on			
	A	Stator field strenth alone	B	Both Stator & rotor field strenths
	C	Stator field strenth & torque angel	D	Stator & rotor field strenth & torque angel
165	In Synchronous machines, pole face losses consist of			
	A	Hysteresis loss	B	I^2R loss in pole phase winding
	C	Eddy current loss	D	(A) & (C) both

166	In rotating machine torque developed , when relative speed between rotr field & stator field is			
	A	zero	B	Equal & opposite to rotor speed
	C	Equal to rotor speed	D	None of above
167	In three phase synchronous motor , the field poles			
	A	Lead the resultant airgap flux wave	B	Lag the resultant airgap flux wave
	C	Along the resultant airgap flux wave	D	are opposite to resultant airgap flux wave
168	A salient pole Synchronous machine feed from infinite bus & running at no load, if it's field current reduced to zero, then motor would			
	A	stop	B	Run at reduced speed
	C	Run at synchronous speed	D	Run above synchronous speed
169	A synchronous motor, fed from infinite bus , is working at half load, if increased in it's field current causes a reduction in the armature current, then the motor is			
	A	Delivering reactive power to bus at leading power factor	B	Delivering reactive power to bus at lagging power factor
	C	Absorbing reactive power from the bus at leading power factor	D	Absorbing reactive power from the bus at lagging power factor
170	An Alternator a synchronous machine is connected to an infinite bus & both operating at Unity power factor , the reactive power handle by them is,			
	A	Both deliver it to BUS	B	Alternator is delivering & motor is absorbing it
	C	Both absorb it from BUS	D	Neither of these machines is absorbing nor delivering it
171	A synchronous motor connected to infinite bus , is working at leading power factor, it's excitation EMF E_f & alternator terminal voltage V_t are related as follows			
	A	$E_f > V_t$ & E_f lags V_t	B	$E_f > V_t$ & E_f lead V_t
	C	$E_f < V_t$ & E_f lags V_t	D	$E_f < V_t$ & E_f lead V_t
172	The speed regulation of Synchronous motor is			
	A	100%	B	10%
	C	0%	D	none of above
173	Slip test is performed on			
	A	Salient pole machines	B	High speed machines
	C	Cylindrical pole machines	D	none of above
	In Synchronous motor, V-Curve is a graph of			

174	A	Armature current Versus Field current	B	Armature current Vesus power factor
	C	Armature current Versus Active power	D	Armature current Versus Reactive power
175	In sychronous motor, Inverted V-curve is a graph of			
	A	Armature current Versus Field current	B	Armature current Vesus power factor
	C	Armature current Versus Active power	D	Armature current Versus Reactive power
176	A Cylindrical rotor Synchronous motor , connected to infinite bus , is working with load angel of 30^0 ,if the load on motor is doubled , Keping excitation constant ,then the load angel will be			
	A	60 degree	B	30 degree
	C	90 degree	D	45 degree
177	The maximum torque that a synchronous motor can deliver is proportional to			
	A	$1/V^2$	B	1/V
	C	V	D	V^2
178	A three phase synchronous motor can be braked electrically by			
	A	Rheostatic Bracking	B	Plugging
	C	Regenerative Braking	D	All Of these
179	The maximum torque developed by Synchronous motor by maintaining synchronism is known as			
	A	Pull In torque	B	Running torque
	C	Pull Out torque	D	Starting torque
180	Breakaway torque in Sychronous motor is equal to			
	A	Staring Torque	B	Pull In torque
	C	Running torque	D	Pull Out torque
181	The torque produced by Synchronous motor is maximum , when load angle ∂ equals to			
	A	60 degree	B	30 degree
	C	90 degree	D	45 degree
182	In synchronous motor at full load , The value of armature current will be minimum , if operates at			
	A	Unity Power factor	B	0.8 leading P.F.
	C	o.8 lagging P.F.	D	0.2 Leading P.f

183	When synchronous motor is loaded , the rotor fall back with respect to stator , the angle at which rotor axis retard is known as			
	A	Load Angle	B	Angle of retardation
	C	Torque angle	D	All Of these
184	Auto Synchronous motor has a unique advantage of			
	A	Self starting	B	Zero loss
	C	Always operate at unit power factor	D	Constant speed
185	Three phase Construction of Synchronous motor resembles with			
	A	Three phase Slip ring induction motor	B	Single phase induction
	C	Three phase squirrelcage inu.motor	D	Alternator
186	In a synchronous motor, "hunting" may be due to variation in any of the following EXCEPT:			
	A	Load	B	Frequency
	C	Supply Voltage	D	Frictional Winding
187	A synchronous motor is switched on to supply with its field winding short-circuited, the motor will			
	A	not start	B	start and run as induction motor
	C	bun out	D	start as induction motor and run as synchronous motor
188	In a synchronous motor, during hunting when the rotor speed exceeds the synchronous speed			
	A	field excitation increases	B	negative phase sequence currents come into action
	C	harmonics are developed	D	damper bars develop induction generator torque.
189	The negative phase sequence in a three phase synchronous motor exists when the motor is			
	A	under loaded	B	over loaded
	C	Fed with un balaced supply	D	Hot
190	The rotor of a synchronous motor can only run at synchronous speed of the stator magnetic field due to			
	A	Faraday's law of electro-magnetic induction	B	Magnetization of rotor poles by stator magnetic field
	C	Lenz's law	D	Interlocking action between stator and rotor fields
	Damper windings are provided on			

191	A	pole faces	B	rotor shaft
	C	separate armature	D	stator frame.
192	Hunting of a synchronous motor may be due to			
	A	pulsations in power supply	B	pulsating torque of driven equipment
	C	reciprocating type of load	D	any of the above.
193	In a synchronous motor with field under excited, the power factor will be			
	A	leading	B	unity
	C	lagging	D	none of the above.
194	In a synchronous motor, net armature voltage is of Eb and V			
	A	Vector sum	B	Arithmetic difference
	C	Vector difference	D	Arithmetic Sum
195	Increasing load on a normally-excited synchronous motor, the power factor			
	A	remain unchanged	B	becomes increasing leading
	C	becomes increasing lagging	D	none of the above.
196	Synchronous motor speed is controlled by varying			
	A	supply voltage only	B	supply voltage and frequency both
	C	supply frequency only	D	none of the above.
197	Maximum electrical power input of a synchronous motor is,			
	A	(Vt Ef) / Xs	B	E^2f/ Xs
	C	V^2t / Xs	D	Xs/ (Vt Ef)
198	A synchronous motor is operating with excitation adjusted for unity power factor current at constant load. On increasing the excitation, the power factor			
	A	will lag	B	will become zero
	C	will lead	D	none of the above.
199	Synchronous motor can operate at			
	A	Lagging power factor only	B	unity power factor only.
	C	Leading power factor only	D	Lagging, leading and unity power factor
	An unexcited single phase synchronous motor is similar to			

200	A	reluctance motor	B	universal motor
	C	repulsion motor	D	A.C.Series motor
201	When the excitation of an unloaded salient pole synchronous motor gets disconnected			
	A	the motor will bum	B	the motor will ran as a reluctance motor at the same speed
	C	the motor will stop	D	the motor will run as a reluctance motor at a lower speed.
202	The damping winding in a synchronous motor is generally used			
	A	To reduced Noise Level	B	To provide starting torque only
	C	To reduced Eddy current Loss	D	to prevent hunting and provide the starting torque
203	A synchronous motor is a useful industrial machine on account of which of the following reasons ? I. It improves the power factor of the complete installation II. Its speed is constant at all loads, provided mains frequency remains constant III. It can always be adjusted to operate at unity power factor for optimum efficiency and economy.			
	A	I only	B	II Only
	C	III Only	D	i& II & III
204	The back emf set up in the stator of a synchronous motor will depend on			
	A	rotor speed only	B	rotor excitation and rotor speed
	C	rotor excitation only	D	coupling angle, rotor speed and excitation
205	The armature current of a synchronous motor has large values for			
	A	low excitation only	B	both low and high excitation
	C	high excitation only	D	Depends on other Factors
206	What is the ratio of no load speed to full load speed of a 200 kVA, 12 pole, 2200 V, 3 phase, 60 Hz synchronous motor ?			
	A	1	B	1.41
	C	1.11	D	1.21

207	If a synchronous motor drops too far behind, the power it takes from the supply also increases too much, and the armature tries to get accelerated, until it is in correct position. Sometimes, some motor overshoots the marks and then the process of acceleration-retardation continues. This phenomenon is known as			
	A	Hunting	B	Swinging
	C	Synchronizing	D	Pulling Out
208	In a synchronous motor if the back emf generated in the armature at no load is approximately equal to the applied voltage, then			
	A	the torque generated is maximum	B	the excitation is said to be 100%
	C	the excitation is said to be zero percent	D	the motor is said to be fully loaded.
209	Which motor can conveniently operate on lagging as well as leading power factor ?			
	A	squirrel cage induction motor	B	synchronous motor
	C	wound rotor induction motor	D	any of the above.
210	A synchronous motor working on leading power factor and not driving any mechanical, is known			
	A	synchronous induction motor	B	synchronous condenser
	C	spinning motor	D	none of the above.
211	The constant speed of a synchronous motor can be changed to new fixed value by			
	A	interchanging any two phases	B	changing the load
	C	changing the applied voltage	D	changing the frequency of supply.
212	In an alternator, voltage drops occurs in			
	A	Armature resistance, leakage reactance, armature reaction and earth connections.	B	Armature resistance, leakage reactance, &armature reaction
	C	Armature resistance	D	Leakage reactance
213	The frequency of voltage generated by an alternator having 8 poles and rotating at 250 rpm is			
	A	50Hz	B	60Hz
	C	16 2/3 Hz.	D	25Hz

214	A 10 pole AC generator rotates at 1200 rpm. The frequency of AC voltage in cycles per second will be			
	A	180 Hz	B	150Hz
	C	100 Hz	D	140Hz
215	An alternator is generating power at 210 V per phase while running at 1500 rpm. If the need of the alternator drops to 1000 rpm, the generated voltage per phase will be			
	A	180 V	B	140 V
	C	150 V	D	105 V.
216	The magnitude of various voltage drops that occur in an alternator, depends on			
	A	power factor of the load	B	power factor x load current
	C	load current	D	power factor x (load current)2.
217	The number of electrical degrees passed through in one revolution of a six pole synchronous alternator is			
	A	360	B	2160
	C	720	D	1080
218	When an alternator is running on no load the power supplied by the prime mover is mainly consumed			
	A	Iron losses	B	Copper losses
	C	No load losses	D	To Induce E.M.F in Armature
219	Which method is known as pessimistic method to find the voltage regulation?			
	A	Synchronous Impedance method	B	Potier Triangle method
	C	MMF method	D	Direct loading method
220	Which method is known as optimistic method to find the voltage regulation?			
	A	Synchronous Impedance method	B	Potier Triangle method
	C	MMF method	D	Direct loading method
221	Which kind of rotor is most suitable for turbo alternators which arc designed to run at high speed ?			
	A	Non Salient Pole type	B	A & C Both
	C	Salient Pole type	D	none of above

222	The power factor of an alternator depends on			
	A	Load	B	Core losses
	C	Speed of rotor	D	Armature losses.
223	Synchronous reactance Includes			
	A	Leakage reactance	B	Magnetizing reactance
	C	Reactance of Armature reaction	D	A & C Both
224	Synchronizing power comes into play, when rotor speed is			
	A	Equal to Synchronous speed	B	Less than Synchronous speed
	C	Greater than Synchronous speed	D	Either more or less than Synchronous speed
225	An alternator running at 1500RPM & Delivering 30Amp current to Purely inductive load, With the field current remaining constant, if the speed is reduced to 1000RPM , The load current becomes			
	A	Little less than 20Amp	B	Little more than 20Amp
	C	20Amp	D	30Amp
226	Salient poles are generally used for			
	A	high speed prime movers only	B	low speed prime movers only
	C	medium speed prime movers only	D	low and medium speed prime movers
227	Reactive power output[lagging] of synchronous generator is limited by			
	A	Load angel	B	Armature current
	C	Field current	D	A & C Both
228	AN Alternator has phase sequence ABC at it's output terminals, if the direction of field excitation is reversed, then the sequence will be			
	A	ABC	B	CBA
	C	ACB	D	None of these
229	For providing load power of 100MW at 0.8P.f.lagging. The ratting of an alternator, it's prime mover & transformer should respectively be			
	A	100MW, 125MVA,125MVA	B	125MVA, 100MW, 125MVA
	C	all of 125 MVA	D	100MW,100MW, 125MVA
230	As the speed of an alternator increases			
	A	It's Frequency will increase	B	the frequency remains constant but power factor decreases
	C	It"s Frequency Will Decrese	D	none of above

231	Aof 4 pole alternator having 36 slots & a coil span of 1 to 8 is short pitched by			
	A	20 Degree	B	80 Degree
	C	140 Degree	D	40 Degree
232	If alternator winding has fractional pitch of 5/6, the coil span is			
	A	300 Degree	B	150 Degree
	C	30 Degree	D	60 Degree
233	The number of harmonics which can eliminated totally by proving fractional short pitch of 4/5 is			
	A	7th	B	5th
	C	3rd	D	9th
234	For an alternator when the power factor of the load is unity			
	A	the armature flux will reduce to zero.	B	the armature flux will have square waveform
	C	the armature flux will be demagnetising	D	the armature flux will be Cross Magnetizing
235	For eliminating 7th harmonics from generated EMF in alternator the fractional pitch must be			
	A	2/3	B	5/6
	C	7/8	D	6/7
236	If in alternator chording angle for fundamenat flux wave is α, it's value for 5th harmonics will be			
	A	25α	B	0.2α
	C	α	D	5α
237	For Parellel operation of two alternator, they mast have same			
	A	Voltage ratting	B	Speed
	C	KVA Ratting	D	Excitation
238	For Alternator connected to infinite bus , active power can be varied by			
	A	Changing excitation	B	Changing prime mover speed
	C	A & C both	D	None of above
239	If the input to the prime mover of an alternator is kept constant but the excitation is changed, then the			
	A	active component of the output is changed	B	power factor of the load remains constant

	C	reactive component of the output is changed	D	power factor of the load reduces.
240	An alternator is said to be over excited when it is operating at			
	A	lagging to leading power factor.	B	leading power factor.
	C	lagging power factor.	D	Unity power factor.
241	In case of alternators, the dark and bright lamp method is used for			
	A	Load balancing	B	Synchronisation
	C	load transfer	D	phase balancing
242	Salient pole type rotors as compared to cylindrical pole type are			
	A	smaller in diameter and larger in axial length	B	larger in diameter and smaller in axial length
	C	larger in diameter as well as axial length	D	small in diameter as well as axial length.
243	Overheating of generator's winding			
	A	reduces generated voltage	B	reduces power factor
	C	reduces life of the machine	D	does not have any significant effect.
244	Two synchronous generators G1and G2 are equally sharing the KVAR of the load while operating in parallel. Keeping the terminal voltage fixed in order to shift part of the KVAR load from G2 to G1			
	A	The field current of G1 is lowered	B	The field current of G2 is raised
	C	The field current of G1 is raised and of G2 lowered	D	The field current of G1 is lowered and of G2 is raised
245	Unbalanced 3-phase stator currents cause			
	A	double frequency currents in the rotor	B	healing of rotor
	C	vibrations	D	all of the above.
246	In large generators protection provided against external faults is			
	A	Biased differential protection	B	sensitive earth fault protection
	C	inter-turn fault protection	D	all of the above.
247	Pitch factor is the ratio of the emfs of			
	A	short pitch coil to full pitch coil	B	full pitch winding to concentrated winding
	C	full pitch winding to short pitch winding	D	distributed winding to full pitch winding.

248	The Potier's triangle separates			
	A	stator losses and rotor losses	B	fixed losses and variable losses
	C	armature voltage and field voltage	D	armature leakage reactance and armature reaction mmf.
249	Two alternators are running in parallel. If the field of one of the alternator is adjusted, it will			
	A	reduce its speed	B	change its power factor
	C	change its load	D	change its frequency.
250	An alternator has rated field current of 4 A. The alternator develops 180 V while drawing a field current of 2 A at 750 rpm. If the field current is made 4 A at 750			
	A	1000Volts	B	330 Volts
	C	100 Volts	D	800Volts
251	The regulation of an alternator is likely to be negative in case of			
	A	high speed alternators	B	slow speed alternators
	C	lagging power factor of the load	D	leading power factor of the load.
252	If two machines are running in synchronism and the voltage of one machine is suddenly increased			
	A	both machines will stop	B	Nothing will happen
	C	the machines will burn	D	synchronising torque will be produced to restore further synchronism.
253	The advantage of salient poles in an alternator is			
	A	reduce noise	B	adoptability to low and medium speed operation
	C	reduced windage loss	D	reduce bearing loads and noise.
254	At a particular instant a turbo alternator is generating 80 MW at 0.8 power factor lagging. Now if the steam supply valve to the steam turbine is further opened and the excitation is not changed			
	A	the speed of the alternator will increase but kW delivered will remain unchanged	B	the speed of the alternator will increase and kW delivered will also increase
	C	the speed of the alternator will remain unchanged but it can meet more kW demand	D	the speed of the alternator will remain unchanged but it will deliver more kVA.
	When two alternators are running in exactly synchronism, the synchronising power wil be			

255	A	sum of the output of two	B	unity
	C	zero	D	0.707.
256	The armature reaction of an alternator influences			
	A	windage losses	B	operting speed
	C	generated voltage per phase	D	waveform of voltage generated.
257	The driving power from the prime mover driving the alternator is lost but the alternator remains connected to the supply network and the field supply also remains on. The alternator will			
	A	get burnt	B	behave as an induction motor but will rotate in the opposite direction
	C	behave as a synchronous motor and will rotate in the same direction	D	behave as a synchronous motor but will rotate in a reverse direction to that corresponding to generator action
258	For the same power rating, a lower voltage alternator will be			
	A	more efficient	B	operating at high rpm
	C	larger in size	D	more costly.
259	Dampers in a large generator			
	A	increase stability	B	reduce frequency fluctuations.
	C	reduce voltage fluctuations	D	none of above
260	A magnetisation curve represents the relationship between			
	A	reactive and non-reactive components of voltage	B	exciting currents and terminal voltage
	C	power factor and terminal voltage	D	magnetic flux and armature current.
261	The regulation of an alternator is			
	A	the reduction in terminal voltage when alternator is loaded at	B	the variation of terminal voltage under the conditions of maximum
	C	the increase in terminal voltage when load is thrown off at lagging P.F.	D	the change in terminal voltage from lagging power factor to leading power factor.
262	Alternators used in aircraft systems usually have frequency of			
	A	25 Hz	B	50Hz
	C	100Hz	D	400Hz

263	In D. C. machine it is preferable to place armature winding on rotor to…			
	A	Reduce losses	B	Reduce armature reaction
	C	Save iron	D	Facilitate commutation
264	In order to reduce _____ losses, armature of DC machine is laminated?			
	A	Copper	B	Hysteresis
	C	Eddy current	D	Frictional
265	The number of commutator segments in a DC machine is equal to..			
	A	Twice the number of poles	B	Number of coils
	C	Number of conductors	D	None of the above
266	Generated voltage of a DC generator depends upon			
	A	Speed only	B	Flux only
	C	Both speed and flux	D	None of the above
267	The field winding of a DC machine usually carries _____ of the rated current of the machine.			
	A	2% to 5%	B	More than 20%
	C	15% to 20%	D	Less than 0.5%
268	In general pole pitch of a DC machine is defined as			
	A	The distance between two poles.	B	The periphery of the armature divided by number of poles
	C	Equal to the number of armature conductors per pole	D	All of the above
269	The functions of yoke in DC machine is			
	A	To provide path to the flux	B	Works as a protective cover of whole machine
	C	To provide mechanical support to the machine	D	All of the above
270	The armature core of a DC machine is made of			
	A	Cast steel	B	Silicon steel
	C	Wrought iron	D	Soft iron
271	Armature slots of a small DC machines are skewed in order to			
	A	Slight decrease in losses	B	Quieter operation
	C	Saving of copper	D	Both a and b

272	The commutation process in a dc generator basically involves			
	A	Passage of current from moving armature to a stationary load	B	Reversal of current in an armature coil as it crosses MNA
	C	Conversion of ac to dc	D	Suppression of reactance voltage
273	For lap winding of DC machine, pitch of a winding (Y) is equal to			
	A	$Y_B + Y_F$	B	$Y_B - Y_F$
	C	Y_B / Y_F	D	None of the above
274	The nature of the current flowing in the armature of a DC machine is			
	A	DC	B	Pulsating
	C	DC superimposed on AC	D	AC
275	The emf produced in DC machine is _____ induced emf.			
	A	Statically	B	Electrostatically
	C	Dynamically	D	Both A & C
276	EMF induced in a coil rotating in a uniform magnetic field will be maximum when			
	A	Flux link with coil is maximum	B	Rate of change of flux linkage is maximum
	C	Rate of cutting flux by coil sides is maximum		Rate of change of flux linkage is minimum
277	The yoke of DC machine carries _____ pole flux.			
	A	the	B	one-half of
	C	two times the	D	None of the above
278	A 4-pole DC machine has ____ magnetic circuits.			
	A	8	B	2
	C	4	D	16
279	_____ part of DC machine sharing overall more percentage of eddy current loss.			
	A	commutator	B	armature
	C	field poles	D	yoke
280	The brush voltage drop in a DC machine is about _____			
	A	2 V	B	1 V
	C	0.5 V	D	less than 1 V

281	The commutator pitch of a simplex lap winding is equal to _____			
	A	number of poles/2	B	1
	C	number of poles	D	2 X number of poles
282	The number of parallel paths in a simplex wave winding is equal to			
	A	number of poles/2	B	number of poles
	C	2	D	2 X number of poles
283	The number of parallel paths in a simplex lap winding is equal to			
	A	2	B	2 X number of poles
	C	number of poles/2	D	number of poles
284	Windings of high voltage DC machines are generally _____ winding.			
	A	wave	B	lap
	C	either lap or wave	D	combined
285	In a lap winding, the number of brushes required is equal to ____			
	A	number of pairs of poles	B	commutator pitch
	C	number of poles	D	number of poles/2
286	In a wave winding, commutator pitch almost equal to _____			
	A	pole pitch	B	twice the pole pitch
	C	pole pitch / 2	D	thrice the pole pitch
287	An 8 pole, 250 V, wave-wound generator has 400 conductors. If the generator is to be lap-wound, the number of conductors required is____			
	A	800	B	3200
	C	1600	D	400
288	An 8 pole pole duplex lap winding will have _____ parallel paths			
	A	16	B	8
	C	4	D	32
289	An AC machine has _____ DC machine for the same rating.			
	A	the same weight as	B	more weight than
	C	less weight than	D	None of the above
290	A separately excited DC generator is not used because ….			
	A	it is too costly	B	voltage drops considerably with load

	C	separate DC source is required	D	None of the above
291	A DC generator having full load terminal voltage equal to no load voltage is known as _____ generator.			
	A	under compounded	B	flat compounded
	C	flat compounded	D	None of the above
292	The main drawback of DC shunt generator is that _____			
	A	it is too costly	B	generator voltage is small
	C	poor voltage regulation	D	high shunt field resistance
293	There is provision of _____ for Those DC machines which are subjected to sudden load changes.			
	A	copper brushes	B	interpole windings
	C	compensating winding	D	equalisers
294	The terminal voltage of a _____ series generator vary widely with changes in load current.			
	A	shunt	B	series
	C	flat compounded	D	None of the above
295	The effect of the armature reaction is to _____			
	A	make the air-gap flux uniform	B	increase the total flux
	C	decrease the flux	D	None of the above
296	At pole tip of a DC generator armature reaction is to _____			
	A	weakens the flux at the trailing	B	weakens the flux at leading
	C	strengthens the flux at the leading	D	strengthens the flux at trailing
297	For a DC machine armature having 10 poles with 10 rps, the number of hysteresis loops formed per second is ____			
	A	100	B	10
	C	1	D	50
298	A shunt generator delivers 195 A at a terminal p. d. of 250 V. The armature resistance and shunt field resistance are 0.02 Ω and 50 Ω respectively. The value of generated EMF is _____-			
	A	282	B	270
	C	246	D	254
	The size of DC generator can be reduced by using _____			

299	A	magnetic material of high permeability	B	high resistance winding material
	C	lap winding	D	iron commutator
300	The physical size of 100 kW, 2000 rpm generator is _____ that of 10 kW 200 rpm generator.			
	A	about the same as	B	less than
	C	greater than	D	None of the above
301	The efficiency of a dc generator is maximum when its variable loss is			
	A	equal to double the constant loss	B	equal to constant loss
	C	equal to half the constant loss	D	equal to square of the constant loss
302	The greatest percentage of heat loss in a DC machine is due to			
	A	frictional losses	B	hysteresis losses
	C	copper losses	D	eddy-current losses
303	hysteresis loss in a DC machine is directly proportional to			
	A	Speed	B	$(speed)^2$
	C	$(speed)^{1.6}$	D	2 X speed
304	Stray loss is equal to _____			
	A	frictional loss & copper loss	B	iron loss & mechanical loss
	C	field copper loss & iron loss	D	copper loss and iron loss
305	What will be generated emf of DC generator if the flux per pole is halved but the speed is doubled?			
	A	be quadrupled	B	double
	C	halved	D	remain the same
306	A 30 kW, 300 V DC shunt generator has armature and field resistance of 0.05 Ω and 100 Ω respectively. What is generated emf?			
	A	294.85	B	311.25
	C	305.15	D	None of the above
307	In DC generator, the main function of compensating winding is to			
	A	assist in commutation	B	reduce demagnetizing effect of armature reaction
	C	reduce distorting effect of armature reaction	D	eliminate reactance voltage

308	What do you mean efficiency of DC generator?			
	A	overall efficiency	B	electrical efficiency
	C	mechanical efficiency	D	None of the above
309	The overall efficiency of a DC generator is maximum when its copper loss is equal to			
	A	constant loss	B	iron loss
	C	stray loss	D	mechanical loss
310	In DC generator, constant loss is equal to			
	A	mechanical losses	B	stray losses
	C	stray loss + shunt Cu loss	D	copper loss and iron loss
311	A 4 pole, lap-wound DC shunt generator has an armature winding consisting of 220 turns each of 0.004 Ω. The armature resistance is			
	A	0.5 Ω	B	1 Ω
	C	0.22 Ω	D	0.055 Ω
312	For DC series generator terminal voltage V is equal to			
	A	$E - I_a (R_a + R_{se})$	B	$E + I_a(R_a + R_{se})$
	C	$E - I_aR_{se}$	D	$E + I_aR_{se}$
313	The resistance of armature circuit includes			
	A	armature winding resistance	B	armature winding resistance + brush resistance
	C	armature winding resistance + field winding resistance	D	None of the above
314	Open circuit characteristic of DC generator is a plot of			
	A	load voltage vs load current	B	no load voltage vs field current
	C	terminal voltage vs load current	D	terminal voltage vs armature current
315	Internal characteristic of DC generator is plot of			
	A	load voltage vs load current	B	no load voltage vs field current
	C	generated emf on load vs armature current	D	terminal voltage vs armature current
316	External characteristic of DC generator is plot of			
	A	load voltage vs load current	B	no load voltage vs field current
	C	generated emf on load vs armature current	D	terminal voltage vs armature current

317	EMF equation of a DC generator is			
	A	Eg = PϕZN/120 A	B	Eg = PϕZN/60 A
	C	Eg = ϕZN/P A	D	Eg = PϕZ/N A
318	Electrical power developed in armature of DC generator is equal to			
	A	mechanical power input - friction losses	B	mechanical power input + iron losses
	C	mechanical power input - Cu losses	D	mechanical power input - (iron losses + friction losses)
319	Shunt field is made parallel with _____ in long shunt compound wound generator.			
	A	series combination of armature and series field	B	parallel combination of armature and series field
	C	series field	D	armature
320	The commutator of a DC generator is act as			
	A	amplifier	B	resistive load
	C	rectifier	D	inductive load
321	Wave wound generators provide			
	A	more current but less voltage	B	less current but more voltage
	C	more current and more voltage	D	both less current and less voltage
322	Eddy current power loss in a DC generator is directly proportional to			
	A	directly proportional to square of the thickness of the lamination	B	inversely proportional to the thickness of the lamination
	C	directly proportional to the thickness of the lamination	D	inversely proportional to square of the thickness of the lamination
323	The copper loss is constant for			
	A	series generator only	B	shunt generator only
	C	both shunt and compound generator	D	None of the above
324	A DC generator supplies a load of 7.5 kW at 200 V. The armature resistance is 0.6 ohm and field resistance is 80 ohms. The generated emf is			
	A	176	B	224
	C	204	D	448

325	In a practical DC generator, mechanical efficiency is			
	A	more than electrical efficiency	B	less than electrical efficiency
	C	equal to electrical efficiency	D	None of the above
326	A 4-pole, long shunt compound generator supplies 100 A at a terminal voltage of 500 V. If armature resistance is 0.02 ohm, series field resistance is 0.04 ohm and shunt field resistance is 100 ohm, then generated emf is			
	A	525.5	B	493.7
	C	512.5	D	506.3
327	The armature copper loss in a DC generator is a			
	A	constant loss	B	variable loss
	C	stray loss	D	None of the above
328	Due to armature reaction main pole flux of DC generator is			
	A	weakened only	B	distorted only
	C	both weakened and distorted	D	strengthened
329	The O. C. C. if a DC generator is also known as its _____ characteristic.			
	A	magnetic	B	external
	C	load	D	internal
330	The line representing the critical resistance of a DC generator _____ its O. C. C.			
	A	just touches	B	runs parallel to
	C	intersects	D	None of the above
331	_____ DC generator has poorest voltage regulation			
	A	shunt	B	series
	C	over compounded	D	flat compounded
332	The level of compounding in a cumulatively compounded DC generator is generally adjusted by			
	A	connecting it long shunt	B	changing shunt field current
	C	connecting it short shunt	D	changing series field current
333	The O. C. C. of DC generator			
	A	is similar for all types of generator	B	is different for all types of generator
	C	may be same of different	D	None of the above

334	If P is the number of poles of a generator and N is the armature speed in rpm then frequency f of magnetic reversal is			
	A	f=NP/120	B	f=PN/60
	C	f=NP/240	D	f=PN/30
335	If the value of shunt field resistance of a shunt field resistance of a shunt generator is greater than the critical resistance, the generator will			
	A	excite the full voltage	B	fail to excite
	C	excite to one-half of full voltage	D	None of the above
336	In a cumulatively compounded generator, the shunt and series fields ____ each other.			
	A	aid	B	oppose
	C	sometime aid, sometime oppose	D	None of the above
337	which of the following will not prevent a self excited generator from building up to its full voltage?			
	A	open field	B	wrong direction of rotation
	C	no residual magnetism	D	speed to high
338	The ideal commutation is not possible because each coil has			
	A	capacitance	B	inductance
	C	capacitance	D	None of the above
339	Current vs time graph for an ideal commutation is a			
	A	straight line	B	parabola
	C	hyperbola	D	None of the above
340	DC motor is still a good option for industrial application because it ……			
	A	is simple in construction	B	is cheap
	C	provides fine speed control	D	has high efficiency
341	The back EMF in a DC motor …….			
	A	aid the applied voltage	B	opposes the applied voltage
	C	aids the armature current	D	None of the above
342	In a DC motor, back EMF value becomes maximum at …….			
	A	full load	B	half load

	C	1/4th load	D	no load
343	The motor equation is given by			
	A	$V = E_b - I_aR_a$	B	$V = E_b + I_aR_a$
	C	$E_b = I_aR_a - V$	D	None of the above
344	The condition for maximum mechanical power development in a DC motor is that back EMF is equal to			
	A	half the applied voltage	B	twice the applied voltage
	C	the applied voltage	D	None of the above
345	Armature current of a DC motor _____ as speed of motor increases.			
	A	remains constant	B	decreases
	C	increases	D	None of the above
346	The speed of a DC motor is			
	A	inversely proportional to flux/pole	B	inversely proportional to applied voltage
	C	directly proportional to flux/pole	D	None of the above
347	The torque developed by a DC motor is directly proportional to			
	A	flux/pole X armature current	B	armature resistance X armature current
	C	armature resistance X applied voltage	D	None of the above
348	Because of _____ in a DC motor shaft torque is less than armature torque.			
	A	Cu losses	B	iron and friction losses
	C	field losses	D	None of the above
349	Armature reaction in DC motor is increased			
	A	when field current increases	B	when armature current decreases
	C	by interpoles	D	when armature current increases
350	In very large DC motors with severe heavy duty, armature reaction effects are corrected by			
	A	using interpoles	B	using compensatory windings in addition to interpoles
	C	shifting the brush position	D	None of the above
351	Variable speed motor is DC _____ motor.			
	A	compulatively compounded	B	shunt

	C	differentially compounded	D	series
352	The running speed of DC series motor is basically determined by …..			
	A	field excitation	B	load
	C	armature resistance	D	None of the above
353	Which of the following motor has best speed regulation?			
	A	differentially compounded	B	series
	C	shunt	D	cumulatively compounded
354	DC shunt motor are used in those applications where _____ is required.			
	A	practically constant speed	B	high starting torque
	C	high no-load speed	D	variable speed
355	Cumulatively compounded motors are used where we require …			
	A	constant speed	B	sudden heavy load for short duration
	C	variable speed	D	None of the above
356	Belt connected loads are not advisable for DC_____ motor.			
	A	differentially compounded	B	shunt
	C	series	D	cumulatively compounded
357	DC _____ motor is used to start against heavy loads.			
	A	shunt	B	differentially compounded
	C	cumulatively compounded	D	series
358	DC _____ motor is used to start against heavy loads.			
	A	differentially compounded	B	series
	C	shunt	D	cumulatively compounded
359	Excessive sparking at the brushes of DC motor may be caused due to…			
	A	dirt on commutator	B	worn bearing
	C	loose coupling	D	misalignment of machine
360	Bearings of DC motor may be heated up due to			
	A	incorrect voltage	B	poor ventilation
	C	loose coupling	D	lack of or dirty lubricant

361	A 440 V shunt motor has an armature resistance of 0.8 ohm and field resistance of 200 ohm. What will be back emf for an output of 7.46 kW at 85% efficiency?			
	A	324.6 V	B	391.5 V
	C	425.8 V	D	222.4 V
362	A DC shunt motor takes 5A at 100V when running light. Shunt field resistance is 50 ohm and armature resistance is 0.2 ohm. What will be driving power?			
	A	204 W	B	298 W
	C	412 W	D	305 W
363	Which kind of Dc motor should not be used for centrifugal pump?			
	A	shunt	B	differentially compounded
	C	cumulatively compounded	D	series
364	What will happen if in a DC shunt motor connection of both armature as well as shunt field winding are reversed?			
	A	motor will not run	B	motor will run at dangerously high speed.
	C	direction of rotation is reversed	D	direction of rotation remains unchanged.
365	The resistance of shunt field winding is _____ as compared to series winding for DC machine.			
	A	less	B	the same
	C	more	D	None of the above
366	BY putting controller resistance in series with the armature of a DC motor, we can obtain speeds			
	A	below the normal speed	B	above the normal speed
	C	above as well as below the normal speed	D	None of the above
367	The speed of a DC motor can be controlled by changing			
	A	its flux	B	applied voltage
	C	armature circuit resistance	D	All of the above
368	By flux control method of speed control of a DC shunt motor, we can obtain speed..			
	A	below the normal speed	B	above the normal speed

	C	above as well as below the normal speed	D	None of the above
369	Motor starters are essential for			
	A	avoiding excessive starting current	B	accelerating the motor
	C	preventing fuse blowing	D	starting the motor
370	A compensating winding is an auxiliary winding embedded in slots in			
	A	the pole faces of main poles	B	the armature
	C	partly in pole faces, partly in armature	D	None of the above
371	Swinburne's test is to be carried out on			
	A	DC compound motor	B	DC series motor
	C	DC shunt motor	D	None of the above
372	Hopkinson's test is the test to be carried out on			
	A	induction motor with any DC motor	B	two identical DC motor
	C	two identical induction motors	D	None of the above

1	The auxiliary power consumption in a thermal (steam) power station is			
	A	2-5%	B	5-10%
	C	10-15%	D	15-20%
2	For a load flow solution the quantities specified at the generator bus are			
	A	P and |V|	B	P and Q
	C	Q and |V|	D	P and δ
3	The power system needs injection of VARs at			
	A	Off pick load	B	Peak load
	C	Both off peak and peak load	D	None of the above
4	If a generating station is situated very close to the load centre, the penalty factor			
	A	Zero	B	Almost unity
	C	Negative	D	Very high
5	Two areas A and B have equal connected loads. However, load diversity in area			
	A	Maximum demand of both the area would be same	B	Maximum demand of A would be more than that of B
	C	Maximum demand of B would be more than that of A	D	Maximum demand of A may be more or less than that of B
6	100 % String efficiency means			
	A	One of the insulator discs shorted	B	Zero potential across each disc
	C	Equal potential across each disc	D	None uniform potential distribution across each disc
7	The charging (capacitive) reactance of a 50 km line is 1500Ω. What is the			
	A	150Ω	B	750Ω
	C	3000Ω	D	500Ω
8	For a short line, if the receiving end voltage is equal to sending end voltage			
	A	The sending end power factor is unity	B	The receiving end power factor is unity
	C	The sending end power factor is leading	D	The receiving end power factor is leading
9	To increase the real power transfer capacity of the transmission line			
	A	The difference between voltage magnitudes of both the ends should be more	B	The inductive reactance of the transmission line should be more
	C	The phase angle between voltages of both the ends should be more	D	None of the above
10	Total instantaneous power supplied by a 3-phase balanced ac supply to a			
	A	Zero	B	Constant
	C	Pulsating with zero average	D	Pulsating with non-zero average
11	Critical clearing time of a fault in a power system is related to			
	A	Reactive power limit	B	Short circuit limit
	C	Steady state limit	D	Transient stability limit
12	The voltage at a particular bus can be controlled by controlling the			
	A	Active power at the bus	B	Reactive power at the bus
	C	Phase angle	D	Frequency at the bus
13	As the inductance of the transmission increases the transmission capacity			

	A	increases	B	decreases
	C	remains almost constant	D	can't say
14	Which is the most prominent factor that limit the power transfer capacity of the			
	A	transient stability limit	B	loop power flow
	C	thermal limit	D	steady state stability limit
15	In case of HVDC transmission there is			
	A	charging current but no skin effect	B	no charging current no skin effect
	C	no charging current but skin effect	D	both charging effect and skin effect
16	Phase Shifting transformers are used in power systems to control			
	A	voltage	B	current
	C	power flow	D	power factor
17	Steady state stability of a power system is improved by			
	A	reducing fault clearing time	B	decreasing generator inertia
	C	single pole switching	D	using double circuit line instead of single circuit line
18	If all the sequence voltages at the fault point in a power system are equal, then			
	A	three phase fault	B	line to ground fault
	C	line to line fault	D	double line to ground fault
19	The synchronous generator used in hydro power plant is of _____ type			
	A	Salient	B	High speed
	C	Cylindrical	D	None of the above
20	For economical operation of power plants in the region _____			
	A	The incremental fuel cost must be low	B	The incremental fuel cost must be the same
	C	The incremental fuel cost must be high	D	The plant should be operated all the time
21	The unit of Transmission line constant B is _____			
	A	Ohm	B	Unit less
	C	Siemens	D	Per unit
22	Making capacity of the circuit breaker depends on			
	A	Operating Voltage	B	Short circuit MVA
	C	Fault current	D	All the above
23	Lightening arresters are used for the protection against			
	A	Over current	B	inter turn
	C	Reverse power	D	Over voltage
24	The normal standard secondary voltage of PT is			
	A	50 V	B	0.1 V
	C	5 V	D	None of the voltage
25	The errors in the CT are mainly due to			
	A	Leakage flux	B.	Core losses
	C	Copper losses	D.	Excitation emf required
26	Underground cable system for 11 kV can work upto a length of			
	A	100 miles	B.	50 miles
	C	25	D.	400 miles
27	Number of insulator discs, each rated 11 kV, required in a suspension type			

	A	6	B.	More than 6
	C	12	D.	Less than 6
28	More efficient plants are used as			
	A	Base load stations	B.	Peak load station
	C	Intermittent load stations	D.	All of these
29	Which fault gives rise to symmetrical fault current?			
	A	Single line to ground fault	B.	Three phase fault
	C	Line to line fault	D.	Double line to ground fault
30	Method of Earthing used for domestic supply is generally _____			
	A	Plate earthing	B.	resistance earthing
	C	Patterson coil earthing	D.	Spike earthing
31	Ferranti effect in a transmission system is because of			
	A	Inductive effect of transmission line	B.	Corona
	C	Resistive effect of transmission line	D.	Capacitive effect of transmission line
32	Skin effect results in_____.			
	A	Decrease of resistance	B.	Increase of resistance
	C	Constant resistance	D.	None of the above
33	While testing a specimen for dielectric strength, the shape should be so			
	A	The electric stress is at its corner	B.	The electric stress is high at its centre
	C	The electric stress is same at all the points	D.	None of these
34	The electric breakdown strength of insulating materials depends on			
	A	Nature of applied voltage	B.	Imperfection of dielectric material
	C	Pressure, temperature and humidity	D.	All of these
35	The secondary winding of a current transformer whose primary is carrying a			
	A	Should not be open circuited	B.	Should not be short circuited
	C	Always open circuited	D.	Should not be connected to wattmeter
36	Which of the following combination of three-phase transformer connections can			
	A	Y-Y and Δ-Δ	B.	Δ-Y and Y-Δ
	C	Δ-Y and Δ-Y	D.	None of these
37	Which type of generator is normally used in wind mill			
	A	D. C. shunt generator	B.	Induction Generator
	C	Synchronous generator	D.	D. C. Series Generator
38	Which earthing is known as arc suppression earthing			
	A	Patterson coil earthing	B.	Resistance earthing
	C	Pipe earthing	D.	Plate earthing
39	The SIL for a transmission line is 250 Ω What will be its SIL if length is doubles			
	A	Remains same	B.	gets doubled
	C	Becomes half	D.	Becomes four times
40	How is the real power at the generatong stations controlled?			

	A	By controlling the driving torque	B	By changing the excitation of a generator
	C	by incresing the voltage magnitude	D	by increasing the current in armature winding
41	Which one of the following is not a source of reactive power?			
	A	Generators	B	Reactors
	C	Capacitors	D	Resistors
42	Economic Dispatch Problem is.....			
	A	Minimise the operating cost of active power generation	B	Maximise the active power generation cost
	C	Minimise the losses in the system	D	Switching ON the most economic generator when load is incresed
43	Power factor of an alternator is determined by its.....			
	A	Speed	B	Excitation
	C	Load	D	Prime mover
44	How many symmetrical components are required to analyse six phase			
	A	3	B	6
	C	12	D	1
45	The phenomina taking place when the neutral of system is ungrounded			
	A	Thomson Effect	B	Ferranti effect
	C	Skin effect	D	Arcing ground
46	The steel core normally used in ACSR conductor is usually of			
	A	alloy steel	B	stainless steel
	C	galvanized steel	D	High speed steel
47	Stringing chart is useful			
	A	for finding the sag in the conductor	B	in the design of the Tower
	C	for the design of insulator string	D	finding the distance between the towers
48	Fast excitation system of the generator will ...			
	A	Improve the voltage control	B	Improve the power factor
	C	improve the dynamic stability	D	improve the reactive power control
49	The area under the daily load curve divided by 24 gives..			
	A	Average demand	B	Least demand
	C	Totla units generated	D	Maximum demand
50	In the substation Grit is used to ..			
	A	Increase the step potential	B	decrease the step potential
	C	increase the earthing resistance	D	reduce the earthing resistance
51	At generator terminals compared to 3 phase fault, 1 phase fault is			
	A	More dangerous	B	less dangerous
	C	both are same	D	None of the above
52	Compared with steady state stability limit, transient stability limit is...			
	A	Always more	B	Always less
	C	some times more and some times less	D	Depends on the loading conditions
53	Shunt reactors in the long transmission lines are provided to...			

	A	Increase voltage under peak lod condition	B	Reduce voltage under light load condition
	C	reduce line loading	D	increase transient stability
54	Which of the following is not a standard power rating of distribution transformer			
	A	25 kVA	B	63 kVA
	C	133 kVA	D	100 kVA
55	The insulation strength of an EHV transmission line is mainly governed by			
	A	Load power factor	B	Switching over voltages
	C	Harmonics	D	Corona
56	Capacitance of the cable depends upon			
	A	Length of the cable	B	Relative permeability of dielectric used in cable
	C	ratio of sheath diameter and core diameter	D	all of the above
57	The power factor of an open ended cable can be improved by			
	A	increasing capacitance	B	decreasing capacitance
	C	increasing insulation resistance	D	Increasing conductor resistance
58	Most versatile and accurate metohd of achieving reactive power compensation			
	A	Switched capacitor	B	Fixed capacitor with controlled reactor
	C	Switched reactor with capacitive bank	D	Swithced capacitor with controlled reactors
59	In a load flow study PV bus is treated as PQ bus when			
	A	Voltage limit is violated	B	Phase angle limit is violated
	C	Active power limit is violated	D	Reactive power limit is violated
60	_____ is a sparse matrix			
	A	Impedance matrix	B	Admittance matrix
	C	Resistance matrix	D	Incidance matrix
61	A transmission line has 3% cu loss and 4% reactive loss. Calculate its percentage			
	A	5%	B	3%
	C	4%	D	7%
62	Unit commitment means			
	A	Switching of generator Economically	B	Economic distribution of load on genrator
	C	Loss allocation on generator	D	All the above
63	in N R Method of load flow, number of iterations …			
	A	are almost constant	B	depends on the size of system
	C	Depends on no. of load buses	D	depends on selection of Slack bus
64	Load factor = ……			
	A	Average demand/max demand	B	Maximum demand/total load
	C	Max demand/ Installed capacity	D	Average demand/ installed capacity
65	A 60 km long line when excited with a source of 500 Hz frequency, It will be			
	A	Short line	B	long line
	C	midium line	D	can be modeled as short of midium
66	The size of conductor in radial distribution system is selected based on			

	A	temprature rise	B	capital cost
	C	voltage drop	D	corona loss
67	An RLC series circuit, behaves like a capacitive circuit when the supply frequency			
	A	the resonance frequency	B	below resonance frquency
	C	above resonance frequency	D	at double the reted freqeuncy
68	The permissible variation of frequency in power systems is			
	A	± 6%	B	± 3%
	C	± 5%	D	± 2%
69	By increasing the transmission voltage to double of its original value the same			
	A	equal to original value	B	half the original value
	C	double the original value	D	one-fourth of original value
70	The G S load flow method has following disadvantage, tick the incorrect			
	A	Unreliable convergence	B	Slow convergence
	C	choise of slack bus affect the convergence	D	iterations are constant
71	Bundled conductors are employed to improve			
	A	appearance of the line	B	mechanical stability of the line
	C	current carrying capacity of the line	D	corona performance of the line
72	The phenomenon of rise in receiving end voltage of the open circuited or lightly			
	A	Proximity effect	B	Ferranti effect
	C	Skin effect	D	Seebeck effect
73	Which is a non conventional source of energy ?			
	A	Fossil fuels	B	Radio active substances
	C	Geothermal, ocean tides and waves	D	Water
74	The efficiency of thermal power plant is of the order of			
	A	15%	B	30%
	C	50%	D	60%
75	Peterson coil is used			
	A	for grounding of neutral system	B	to reduce fault current
	C	for connecting two interconnected systems	D	for shunt compensation of transmission line
76	The area under the load curve represents			
	A	system voltage	B	current
	C	energy consumed	D	maximum demand
77	Load factor is the ratio of			
	A	peak load to average load	B	peak load to minimum load
	C	average load to peak load	D	average load to minimum load
78	Effect of increase in temperature in overhead transmission lines is to			
	A	Increase the stress and length	B	Decrease the stress but increase the length

	C	Decrease the stress and length	D	None of the above
79	An overhead line with surge impedance of 400 ohms is terminated through a			
	A	20 ohms	B	200 ohms
	C	800 ohms	D	None of the above
80	The voltage of a particular bus can be controlled by controlling the			
	A	Phase angle	B	Reactive power of the bus
	C	Active power of the bus	D	Phase angle and reactive power
81	Resistance switching is normally resorted in case of			
	A	Air blast circuit breakers	B	bulk oil circuit breakers
	C	Minimum oil circuit breakers	D	All types of breakers
82	The magnetizing inrush current in a transformer is rich in			
	A	3rd harmonics	B	5th harmonics
	C	7th harmonics	D	2nd harmonics
83	For a load flow solution the quantities specified at the Slack bus are			
	A	δ and |V|	B	P and |V|
	C	Q and |V|	D	P and δ
84	Load flow study is carried out for			
	A	Fault calculations	B	Stability studies
	C	System planning	D	Load frequency control
85	SSR (Sub-synchronous resonance) phenomenon is			
	A	purely electrical	B	purely mechanical
	C	purely hydraulic	D	both (a) and (b)
86	Earth wire on EHV overhead transmission line is provided to protect the line			
	A	lightning surge	B	switching surge
	C	excessive fault voltages	D	corona effect
87	Which of the power plants has the highest total installed capacity in India ?			
	A	hydro-electric power plant	B	diesel plant
	C	nuclear plant	D	thermal power plant
88	A long line under no load conditions, for a good voltage profile needs,			
	A	Shunt resistance at receiving end	B	Shunt reactors at receiving end
	C	Shunt capacitance at receiving end	D	All of the above
89	A distance relay measures			
	A	difference in voltage	B	difference in impedance
	C	difference in current	D	difference in phase
90	For transmission line, which one of the following relation is true ?			
	A	AD – BC =1	B	–AD-BC =1
	C	AD-BC=0	D	AD - BC = 0
91	The sag of the conductors of a transmission line is 2.5m when the span is 250m.			
	A	reduce by 25%	B	increase by 25%
	C	reduce by 12.5 %	D	remain unchanged
92	Shunt compensation in EHV line is resorted to			
	A	Improve the stability	B	Reduce the fault level
	C	Improve voltage profile	D	As a substitute for synchronous phase modifier

93	The percent bias for a generator protection lies between			
	A	5 to 10 percent	B	10 to 15 percent
	C	15 to 20 percent	D	20 to 25 percent
94	For stability reasons we operate the transmission line with power angle in the			
	A	10 to 25 degree	B	30 to 45 degree
	C	60 to 75 degree	D	65 to 80 degree
95	Load flow solution is always assured in case of			
	A	Gauss method	B	Gauss Siedel method
	C	Newton Raphson method	D	None of the method guarantees convergence
96	The coefficient of reflection for a short circuited line is			
	A	1	B	-1
	C	0	D	infinity
97	If δ is the loss angle of the cable then its power factor is			
	A	sin δ	B	cos δ
	C	Power factor is independent of δ	D	tan δ
98	For complete protection of a 3-phase line			
	A	Three phase and three earth fault relays are required	B	Three phase and two earth fault relays are required
	C	Two phase and two earth fault relays are required	D	Two phase and one earth fault relay is required
99	The operation of the relay which is most affected due to arc resistance is			
	A	Mho relay	B	Reactance relay
	C	Impedance relay	D	All are equally affected
100	If a line is 100% series compensated then series resonance occurs at			
	A	50 Hz	B	100 Hz
	C	150 Hz	D	Series resonance is not dependent on line compensation
101	For a transmission line with resistance R, reactance X, and negligible			
	A	0	B	1
	C	R+jX	D	R+X
102	The critical clearing time of a fault in a power system is related to			
	A	reactive power limit	B	short circuit current limt
	C	steady state stability limit	D	transient stability limit
103	Whenever the conductors are dead ended or there is a change in direction of			
	A	pin type	B	suspension type
	C	strain type	D	shackle type
104	The design of insulation for systems above 400 kV is based on			
	A	lightning surge	B	switching surge
	C	system voltage	D	system load level
105	The bus admittance matrix of a power system is not			
	A	symmetric	B	full matrix
	C	square matrix	D	matrix having dominant diagonal elements
106	Severe over-voltages are produced during arcing faults in a power system with			
	A	isolated	B	solidly earthed
	C	earthed through a low resistance	D	earthed through an inductive coil

107	In a power station, the cost of generation of power reduces when			
	A	diversity factor alone increases	B	both diversity factor and load factor increase
	C	load factor alone increases	D	both diversity factor and load factor decrease
108	The inductance of a transmission line is minimum when			
	A	GMD is high	B	GMR is high
	C	Both GMD and GMR are high	D	GMD is low and GMR is high
109	For a 500 Hz frequency excitation, a 50 km long power line will be modeled as			
	A	short line	B	medium line
	C	long line	D	data insufficient for decision
110	The reactive power transfer over a line mainly depends on			
	A	power angle δ	B	|VS – VR|
	C	VS	D	VR
111	HVDC transmission is preferred to EHV AC because			
	A	HVDC terminal equipment are inexpensive	B	VAR compensation is not required in HVDC system.
	C	System stability can be improved	D	Harmonic problem is avoided.
112	In a d.c. transmission line			
	A	it is necessary for sending and receiving end to be operated in synchronism	B	the effects of inductive and capacitive reactances are greater than in ac transmission line of the same rating
	C	there are no effects due to inductive and capacitive reactances	D	power transfer capability is limited by stability considerations
113	In a thermal power plant, the feed water coming to the economiser is heated			
	A	HP steam	B	LP steam
	C	Direct heat in the furnace	D	Flue gases
114	The most appropriate operating speeds in rpm of generators used in thermal,			
	A	3000, 3000 and 300	B	3000, 300 and 1500
	C	1500, 1500 and 3000	D	1000, 900 and 750
115	A fault is more severe from the point of view of RRRV if it is a			
	A	Short line fault	B	Medium length line fault
	C	Long line fault	D	None of the above
116	A voltage controlled bus is treated as a load bus in subsequent iteration in GS			
	A	Voltage limit is violated	B	Reactive power limit is violated
	C	Active power limit is violated	D	Phase angle limit is violated
117	In case of three phase short circuit in a system, the power fed into the system is			
	A	mostly active	B	mostly reactive
	C	active and reactive both equal	D	only reactive
118	Capacitance Voltage Transformer (CVT) is used to			
	A	improve the power factor of transmission line	B	reduce losses in transmission line
	C	connect instruments on LT side	D	reduces the incidence of overvoltages on transmission line

119	Which of the following protects the underground cables against mechanical			
	A	Armouring	B	Bedding
	C	Sheath	D	None of the above
120	For an existing ac transmission line the string efficiency is 80%. Now if dc voltage			
	A	80.00%	B	More than 80%
	C	Less than 80%	D	100.00%
121	A 50 Hz, four pole turbo alternator rated at 20 MVA, 13.2 kV has an inertia			
	A	80 kJ	B	80 MJ
	C	40 MJ	D	20 MJ
122	If X is the system reactance and R its resistance the power transferred is			
	A	X = R	B	X = √R
	C	X = √3R	D	X = 2R
123	If the penalty factor of a plant is unity, the incremental transmission loss is			
	A	One	B	Infinity
	C	Zero	D	None of the above
124	If the normal system frequency is 50 Hz and if it is operating at 53 Hz, the			
	A	Power transformer	B	Turbine
	C	Alternator	D	all the above are equally affected
125	For Y-delta transformer with Y-side grounded, the zero sequence current			
	A	exists in the line on Y-side	B	exists in the line on delta side
	C	exists in the line on both Y and delta sides	D	has no path to ground
126	A lightning arrestor connected between the line and the earth in a power system			
	A	protects the terminal equipment against traveling surges	B	protects the transmission line against lightning stroke
	C	suppresses high frequency oscillations in the line	D	reflects back the traveling wave approaching it
127	A power system network with a capacity of 100 MVA has a source impedance of			
	A	10 MVA	B	30 MVA
	C	100 MVA	D	1000 MVA
128	A negative sequence relay is commonly used to protect			
	A	an alternator	B	a transformer
	C	a transmission line	D	a bus bar
129	A three phase 33 kV oil circuit breaker is rated 1200A, 2000MVA, 3s. The			
	A	1200A	B	3600A
	C	35 kA	D	104.8 kA
130	In a 12 pulse valve group operation the most troublesome harmonics on ac side			
	A	11th and 13th	B	23rd and 25th
	C	5th and 7th	D	3rd and 5th
131	In G-S method of power flow problem, the number of iterations may be reduced			
	A	Deceleration constant	B	Acceleration constant
	C	Gauss Constant	D	Blocking factor
132	If the positive, negative and zero sequence reactance of an element of a power			
	A	synchronous generator	B	synchronous motor

	C	static load	D	transmission line
133	In Merz-Price percentage differential protection of a Δ-Y transformer, the CT			
	A	Δ-Y	B	Y-Δ
	C	Δ-Δ	D	Y-Y
134	Transmission lines are transposed to			
	A	reduce copper loss	B	reduce skin effect
	C	prevent interference with neighbouring communication circuits	D	prevent short circuit between lines
135	For harnessing low variable waterheads, the suitable hydraulic turbine with high			
	A	Kaplan	B	Francis
	C	Pelton	D	Impeller
136	The interrupting time of a circuit breaker is the period between the instant of			
	A	initiation of short circuit and the arc extinction on an opening operation	B	energizing of the trip circuit and the arc extinction on an opening operation
	C	initiation of short circuit and the parting of primary contacts	D	energizing of the trip circuit and the parting of primary arc contacts
137	In the protection of transformers, harmonic restraint is used to guard against			
	A	magnetizing current inrush	B	unbalanced operation
	C	lightning	D	switching over voltages
138	A 3-phase, 50 Hz transmission line has R = 10 ohms, Inductive reactance = 20			
	A	0.06368 H	B	0.127 H
	C	1.274 H	D	2.654 H
139	A single phase transmission line of impedance j0.8 ohm supplies a resistive load			
	A	unity	B	0.8 lagging
	C	0.8 leading	D	0.6 lagging
140	A thermal generating station has an installed capacity of 15 MW and supplies a			
	A	0.5	B	0.67
	C	0.75	D	1
141	The condition AD-BC =1 for 2 port network implies that the network is a ___			
	A	Reciprocal network	B	loss less network
	C	unilateral network	D	Lumped element network
142	In a large interconnected power system, consider three buses having short-			
	A	ΔV1 > ΔV2 > ΔV3	B	ΔV1 > ΔV3 > ΔV2
	C	ΔV1 < ΔV3 < ΔV2	D	None of the above
143	Galloping in transmission line conductors arises generally due to			
	A	asymmetrical layers of ice formation	B	vortex phenomenon in light winds
	C	heavy weight of the line conductors	D	adoption of horizontal conductor configurations
144	When a 50 MVA, 11kV, 3-phase generator is subjected to a 3-phase fault, the			
	A	j0.2 and j0.05 pu	B	j0.2 and j0.25 pu
	C	j0.25 and j0.25 pu	D	j0.05 and j0.05 pu

145	The power generated by two plants are:P1 = 50 MW, P2 = 40 MW. If the loss			
	A	5.5 MW	B	6.5 MW
	C	4.5 MW	D	8.5 MW
146	26) The L/C ratio for 132 kV and 400 kV lines are typically 160 × 103 and 62.5 ×			
	A	108.9 and 2560 MW	B	44 and 2560 MW
	C	44 and 640 MW	D	640 and 44 MW
147	In a 3 phase 4-wire cable the cross sectional area of neutral conductor			
	A	half of the area of phase conductor	B	equal to area of phase conductor
	C	double the area of phase conductor	D	1.5 times the area of phase conductor
148	A 500 MW, 21 kV, 50 H,z 2 pole synchronous generator having rated pf of 0.9 lag			
	A	2.44s	B	2.71s
	C	4.88s	D	5.42s
149	If the inductance and capacitance of a system are 1.0 H and 0.01 µF respectively			
	A	50 kV	B	100 kV
	C	60 kV	D	57 kV
150	The velocity of travelling wave through a cable of relative permittivity 4 is			
	A	equal to that of light	B	1/4 times the speed of light
	C	1/2 times the speed of light	D	Data available is insuficient
151	In a MHD generator the conductor is made up of			
	A	copper or aluminium	B	copper
	C	gas	D	liquid metal or gas
152	For protection of parallel feeders fed from one end the relays required are			
	A	Non-directional relays at the source end and directional relays at the load end	B	Non-directional relays at both the ends
	C	Directional relays at the source end and non-directional at the load end	D	Directional relays at both ends
153	Two alternators each having 4% speed regulation are working in parallel.			
	A	4 MW and 6 MW	B	6 MW and 4 MW
	C	5 MW and 5 MW	D	10 MW and zero
154	In a three generator power system one generator G1 has a speed governor			
	A	generation of G2 and G3 increases equally while that of G1 remains unchanged	B	generation of G1 alone is increased while that of G2 and G3 remain unchanged
	C	generation G1,G2 and G3 is increased	D	generation G1,G2 and G3 is increased equally 0.5, 0.25 and 0.25
155	The low power factor of an industrial plant is uneconomical for			
	A	electric supply utility only	B	owner of the plant only
	C	both the owner of the plant and electric supply utility	D	either (A) or (B)
156	The inertia constants of two groups of machines which do not swing together			

	A	M1+M2	B	M1-M2
	C	M1*M2/(M1+M2)	D	√M1√M2
157	The powe transmission capability of bipolar lines is approximately			
	A	half that of 3-phase single circuit line	B	the same as that of 3-phase single circuit line
	C	twice that of 3-phase single circuit line	D	thrice that of 3-phase single circuit line
158	An EHV line of length 300 km can be approximated by a lossless line having			
	A	24.24%	B	12.12%
	C	19.05%	D	6.06%
159	A generator is connected through a 20 MVA 13.8/138 kV step up transformer to			
	A	36	B	1.44
	C	0.72	D	0.18
160	An industrial sub-station with a 4 MW load, a capacitor of 2 MVAR is installed to			
	A	0.85	B	1
	C	0.80 lag	D	0.90 lag
161	A generator with 1.0 pu terminal voltage supplies power through a step up			
	A	12.5pu	B	3.125 pu
	C	10.0 pu	D	5.0 pu
162	A solidly grounded 3-phase 500 MVA alternator operating on no load has			
	A	2.851 pu	B	3.333 pu
	C	6.667 pu	D	8.553 pu
163	A coal fired steam power station working at a plant load factor of 80% has one			
	A	One	B	Six
	C	Ten	D	Twenty four
164	In a 400 kV power network, 360 kV is recorded at a 400 kV bus. The reactive			
	A	61.73 MVAR	B	55.56 MVAR
	C	45.0 MVAR	D	40.5 MVAR
165	If, for a given alternator in economic operation mode, the incremental cost is			
	A	1000 MW	B	1250 MW
	C	750 MW	D	1500 MW
166	The corona loss on a particular system at 50 Hz is 1 kW/km per phase. The			
	A	1 kW/km per phase	B	1.13 kW/km per phase
	C	1.2 kW/km per phase	D	0.83 kW/km per phase
167	A 3-phase overhead transmission line has its conductors horizontally spaced			
	A	average capacitance and inductance will increase	B	average capacitance will decrease and inductance will increase
	C	average capacitance will increase and inductance will decrease	D	surge impedance loading of the line increases
168	For Low head and high discharge the hydraulic trubine used is			
	A	Pelton wheel	B	Francis Turbine
	C	Kaplna Turbine	D	None of these
169	The input equation of 0.75 MW power house is given by I =			
	A	0.5 Kcal/hr	B	15 X 10^9 Cal/Hr

	C	1.2 X 10^9 Cal/Hr	D	Zero
170	For a 5 Hz frequency excitation, a 400 km long power line will be modelled as			
	A	Long line	B	Short line
	C	medium line	D	data insufficient for decision
171	The insulation resistance of cable of length 10 km is 1 M**W.** For length of 100 KM			
	A	10 MW	B	100 MW
	C	0.1 MW	D	0.01 MW
172	At SIL, the transmission line_____			
	A	only absorbs reative power	B	Only generates reactive power
	C	generate active power	D	none of the above
173	The advantage of dc system over ac system is			
	A	no skin effect	B	improved line regulation
	C	no reactive power consumpsion	D	all the above
174	The top most wire in distribution line is			
	A	a neutral wire	B	a phase wire
	C	a earth wire	D	None of these
175	The Z matrix of 2 port network is given by [0.9 0.2;0.2 0.6] The element Y22 of			
	A	1.2	B	-0.4
	C	0.4	D	1.8
176	A power transmisssion line of surge impedance Zo is terminated in impeadence			
	A	(Zo* ZL)/(Zo + ZL)	B	(Zo - ZL)/(Zo + ZL)
	C	(Zo + ZL)/(Zo - ZL)	D	(Zo + ZL)/(Zo* ZL)
177	For transient stability of power system			
	A	$\partial P/\partial t > 0$, $\partial P/\partial \delta < 0$	B	$\partial P/\partial t > 0$, $\partial P/\partial \delta > 0$
	C	$\partial P/\partial t < 0$, $\partial P/\partial \delta > 0$	D	$\partial P/\partial t < 0$, $\partial P/\partial \delta < 0$
178	Time taken for surge to travel 500 Km long overhead transmission line is			
	A	1.25 ms	B	2 ms
	C	1.666 ms	D	5 ms
179	A long over head transmission line is terminated by its characteristic impedance.			
	A	progressively increase from the sending end to receiving end	B	progressively decreases from the sending end to receiving end
	C	reamin same at two ends but higher at intermediate point and being maximum at the centre of line	D	remain same at all the points
180	Inertia constant H of a machine of 200 MVA is 2 p.u. Its value corresponding to			
	A	2.0	B	1.0
	C	0.5	D	4.0
181	For stable operation of interconnected power system, the passive element that			
	A	Resistor	B	Capacitor
	C	Resistor & Capacitor	D	Reactor
182	If two synchronous generators are connected in parallel, loss of synchronism will			
	A	stalling of generators	B	Wild fluctuation in current
	C	Wild fluctuation in current and voltage	D	Wild fluctuation in voltage
183	For Power system planning studies _____ is most essential			

	A	Fault analysis	B	Load flow analysis
	C	stability studies	D	Fault calculation
184	A B C and D parameters are used for analysis of _____ transmission line			
	A	Short	B	Midium
	C	Long	D	None of the above
185	The presence of earth wire in case of over head line increases its			
	A	increases its inducatnce	B	increases its capacitance
	C	decreases its capacitance	D	decreases its capacitance
186	Stability of a system is termed as			
	A	the value of power below which system is stable and above which also stable	B	the value of power below which system is stable and above which a unstable
	C	the value of power below which system is unstable and above which stable	D	the value of power below which system is unstable and above which also unstable
187	In AC transmission line system there is difference in phase voltage at the two			
	A	earthing of line	B	system voltage
	C	insultaors	D	reactance of line
188	An isolator operates under			
	A	no load condition	B	full load condition
	C	fault condition	D	60 % of load condition
189	If a system is dynamically unstable			
	A	governer action has no effect	B	oscillation may increase until synchronism is lost
	C	load of sytem is less than energy input	D	None of these
190	When excitation is altered in an alternator connected to infinite bus , its			
	A	Power generated	B	Speed of rotor
	C	Power Factor	D	Terminal Voltage
191	Shunt compensation in EHV line is generally provided at			
	A	middle of the line	B	the receiving end
	C	the supply end	D	anywhere
192	In Load Flow Studies/ Analysis, the load connected to bus is represented as			
	A	Constant impedance connnected at the bus	B	Voltage and frequency dependent source at the bus
	C	Cons curent drawn from the bus	D	constant real and reactive power drawn from the bus
193	For load flow analysis, the quantities normally specified at voltge controlled			
	A	P and |V|	B	P & Q
	C	Q & |V|	D	P & δ
194	The velocity of travelling wave through a cable at relative permittivity of 9 is			
	A	9×10^8 m/s	B	1×10^8 m/s
	C	3×10^8 m/s	D	5×10^8 m/s
195	The per unit impedance of transmission line 0.25, if the base KV and MVA are			
	A	0.0625	B	0.125
	C	0.25	D	0.5

196	Switching surge is			
	A	Hperbolically dying voltage	B	short duration trasient voltage
	C	high voltage dc	D	high voltage ac
197	Current reactors are used			
	A	to improve efficiency	B	to improve power factor
	C	to reduce fault level	D	to improve regulation
198	A medium transmissio n with parameters A,B,C,D is extended by connecting			
	A	A, AZ + B, C, CZ + D	B	A, AZ , C, CZ
	C	A, BZ , C,DZ	D	AZ, B, C/Z, D
199	Steepness of travelling wave is attenuated by			
	A	resistance of line	B	inductance of line
	C	capacitance of line	D	None of these
200	A line having resistance R0 =25 ohm is terminated with resistance of 50 Ohm			
	A	0.3333	B	1.6666
	C	0.66666	D	0
201	Reflection coefficient of open circuited transmission line is			
	A	1	B	-1
	C	0	D	α
202	Reflection coefficent of line when line is terminated with its charateristics			
	A	1	B	-1
	C	0	D	α
203	The rated votlage of 3 phase power system is given as			
	A	rms phase voltage	B	rms line to line voltage
	C	peak line voltage	D	Peak phase voltage
204	Equal area criterion gives the information regarding			
	A	absolute stability	B	relative stability
	C	stability region	D	swing curve
205	If in short transmission line, resistance and inductance are found to be equal and			
	A	of unity pf	B	of zero pf
	C	of 0.707 lagging	D	of 0.707 leading
206	The non- uniform distribution of voltage across the unit in string of suspension			
	A	the existence of stray capacitance between metallic junctions of the units and the tower body	B	non-uniform distance between the cross arm and the units
	C	unequal self capacitance of units	D	None of these
207	Hollow conductors are used in transmission lines to			
	A	reduce weight of copper	B	improve stability
	C	reduce corona	D	increase power transmission capacity
208	The function of steel in ACSR conductor is			
	A	to care of surges	B	to provide mechanical strength
	C	to prevent corona	D	to improve power factor
209	In an interconnected power system consisting of a Nuclear power station,			
	A	Nuclear power station	B	Thermal power station
	C	Diesel generating station	D	All of the above
210	Capacity factor of a power station is			

	A	Maximum demand / average demand	B	maximum installed capacity of station / average demand of station
	C	Average demand on station / maximum demand on station	D	average demand of station / maximum installed capacity of station.
211	For a thermal power plant, which is not the fixed cost ?			
	A	Interest on capital	B	Insurance charges
	C	Cost of fuel	D	Depreciation
212	Out of the following which one is not a unconventional source of energy ?			
	A	Tidal power	B	Nuclear energy
	C	Geothermal energy	D	Wind power
213	Pressure of steam in condenser is			
	A	much less than steam pressure.	B	slightly less than steam pressure
	C	more than steam pressure	D	atmospheric pressure
214	Transmission efficiency increases as			
	A	voltage increases but power factor decreases	B	voltage decreases but power factor increases
	C	voltage and power factor both decreases	D	voltage and power factor both increases
215	When alternating current passes through a conductor			
	A	it remains uniformly distributed throughout the section of conductor	B	portion of conductor near the surface carries less current as compared to the core
	C	portion of conductor near the surface carries more current as compared to the core	D	entire current passes through the core of the conductor.
216	The fact that a conductor carries more current on the surface as compared to			
	A	skin effect	B	corona
	C	permeability	D	unsymmetrical fault
217	Skin effect depends on			
	A	size of the conductor	B	frequency of the current
	C	resistivity of the conductor material	D	all of the above.
218	The skin effect of a conductor will reduce as the			
	A	diameter increases	B	frequency increases
	C	resistivity of conductor material increases.	D	permeability of conductor material increases
219	In overhead transmission lines the effect of capacitance can be neglected when			
	A	less than 200 km	B	less than 150 km
	C	less than 120 km	D	less than 80 km
220	The voltage of transmission can be regulated by			
	A	use of tap changing transformers	B	switching in shunt capacitors at the receiving end during heavy loads

	C	use of series capacitors to neutralize the effect of series reactance	D	any of the above methods.
221	In case the height of transmission tower is increased			
	A	the line capacitance and inductance will not change	B	the line capacitance will decrease but line inductance will remain unaltered
	C	the line capacitance and line inductance both will decrease	D	the line capacitance will decrease and line inductance will increase
222	For increasing the capacity of a transmission line to transmit power			
	A	the voltage must be reduced	B	line inductance should be decreased
	C	line capacitance should be decreased	D	all of the above
223	In a thermal power plant cooling towers are used to			
	A	condense low pressure steam	B	cool condensed steam
	C	cool water used in condenser for condensing steam	D	cool feed water of boiler
224	Which of the following material can be used as a moderator ?			
	A	Graphite	B	Heavy water
	C	Beryllium	D	Any of the above
225	A gas turbine works on			
	A	Carnot cycle	B	Brayton cycle
	C	Dual cycle	D	Rankine cycle
226	Which auxiliary of gas turbine consumes most of the power ?			
	A	Burner	B	Compressor
	C	Combustion chamber	D	Fuel pump
227	Compressor used in gas turbines is			
	A	reciprocating compressor	B	plunger type compressor
	C	multistage axial flow compressor	D	screw compressor
228	In a thermal power plant, heat from the flue gases is recovered in			
	A	Economizer	B	Electric precipitator
	C	chimney	D	condenser
229	In bleeder turbines, part of the steam is extracted for			
	A	heating secondary air	B	reheating
	C	condensation.	D	feed water heating
230	The effect of corona is			
	A	increased energy loss	B	increased reactance
	C	increased inductance	D	all of the above
231	In transmission system a feeder feeds power to			
	A	service mains	B	distributors
	C	generating stations	D	all of the above
232	In a transmission line having negligible resistance the surge impedance is			
	A	$(L+C)^{1/2}$	B	$(1/LC)^{1/2}$
	C	$(L/C)^{1/2}$	D	$(C/L)^{1/2}$

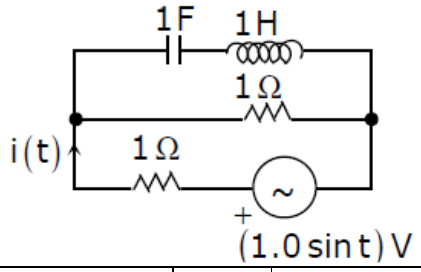
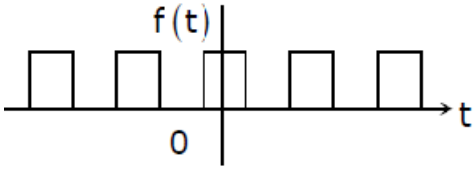
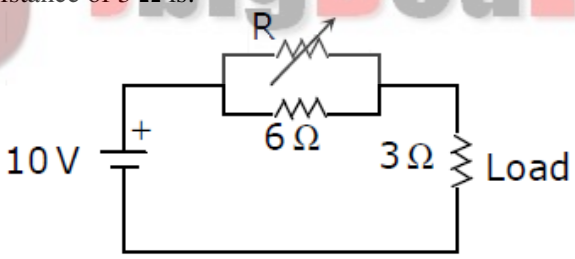
233	Transmission lines link			
	A	service points to consumer premises	B	distribution transformer to consumer premises
	C	receiving end station to distribution transformer	D	generating station to receiving end station.
234	String efficiency can be improved by			
	A	using shorter cross arm	B	insulator disc of same size
	C	using a guard ring	D	any of the above.
235	Stranded conductors are used for transmitting power at high voltages because			
	A	ease-in handling	B	low cost
	C	better wind resistance	D	increased tensile strength
236	If 3 MW power is to be transmitted over a distance of 30 km, the desirable			
	A	33 kV	B	66 kV
	C	132 kV	D	220 kV
237	Which of the following equipment is not installed in a substation ?			
	A	Shunt reactors	B	Voltage transformers
	C	Series capacitors	D	Exciter
238	Which of the following correctly represents the sequence of operations of			
	A	Close earthing switch - open circuit breaker open isolator	B	Open isolator - close circuit breaker - open earthing switch
	C	Open circuit breaker - open isolator - close earthing switch	D	Close circuit breaker - close isolator - open earthing switch
239	Which of the following correctly presents the sequence of operations of isolator			
	A	Ensure circuit breaker is open - open isolator - open earthing switch if any - close circuit breaker.	B	make sure that circuit breaker is open - close isolator - open earthing switch if any close circuit breaker
	C	Ensure circuit breaker is closed - close isolator - open earthing switch	D	None of the above
240	Stability of a system is not affected by			
	A	Reactance of line	B	Reactance of generator
	C	Losses	D	Output torque
241	The function of protective relay in a circuit breaker is			
	A	to each any stray voltages	B	to close the contacts when the actuating quantity reaches a certain predetermined value
	C	to limit arcing current during the operation of circuit breaker	D	to provide additional safety in the operation of circuit breaker.
242	In air blast circuit breakers, the pressure of air is of the order of			
	A	100 mm Hg	B	1 kg/cm2
	C	20 to 30 kg/cm2	D	200 to 300 kg/cm2
243	A material best suited for manufacturing of fuse wire is			
	A	Aluminium	B	Silver
	C	Lead	D	Copper
244	The disadvantage offered by ungrounded systems is			
	A	frequent arcing grounds	B	difficult earth fault relaying

	C	voltage oscillations	D	all of the above.
245	Solid grounding is used for voltages			
	A	above 220 kV	B	above 11 kV
	C	below 660 V	D	below 115 V
246	Resistance grounding is used for voltages			
	A	below 220 V	B	up to 660 V
	C	between 3.3 kV to 11 kV	D	above 66 kV.
247	Arcing in transmission line can be prevented by connecting suitable			
	A	Circuit breaker	B	Relay
	C	capacitor in neutral	D	inductor in neutral
248	The operation of relay which is most affected due to arc resistance			
	A	Mho Relay	B	Reactance Relay
	C	Impedance relay	D	All are equally afected
249	The relay which is most sensitive to power swings (mal operation) is			
	A	Mho Relay	B	Reactance Relay
	C	Impedance relay	D	All are equally afected
250	A 100/5 CT has secondary winding & lead resistance of 0.2 ohm, and the			
	A	10	B	7.5
	C	5	D	2.5
251	A distance relay is said to be inheretently directional if its characteristics on R-X			
	A	is a straight line passing through origin	B	is a circle that passes through origin
	C	is a circle that encloses origin	D	None of these
252	Which component of the magnetizing inrush current provides restraining torque			
	A	2nd harmonics	B	3rd harmonics
	C	4th harmonics	D	5th harmonics
253	Differential protection of generator make use of the principle that under normal			
	A	at the neutral end of phase winding is zero	B	in each of three phase winding is identical
	C	at both end of the phase winding are equal	D	at the two ends of the phase winding are unequal
254	The reactance relay is essentially			
	A	an overcurrent relay with current restraint	B	an over volatge relay with directional restraint
	C	a directional relay with voltage restraint	D	a directional relay with current restraint
255	During arc extinction SF6 gas			
	A	decomposes into S and F ions	B	gets oxidized
	C	decomposes into $SF_4$and SF_2	D	reduces to SF3.
256	Which of the following protective devices can be used against lightning surges ?			
	A	Horn gap	B	Surge diverters
	C	Lightning arresters	D	all of the above
257	Electro-magnetic relays may be operated by			
	A	electro-magnetic attraction	B	electro-magnetic induction
	C	thermal effect	D	any of the above.
258	Differential protection principle is used in the protection of			

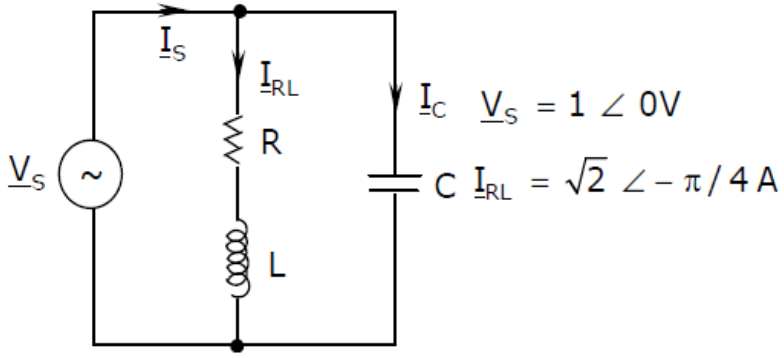
	A	generators	B	transformers
	C	feeders	D	all of the above.
259	Thermal relays are often used in			
	A	generator protection	B	transformer protection
	C	motor starters	D	none of the above.
260	The power factor of the arc in circuit breaker is			
	A	always zero	B	always unity
	C	always lagging	D	always leading.
261	In a circuit breaker the arc is indicated by the process of			
	A	I and IV only	B	I, II and III only
	C	II, III and IV only	D	I and II only.
262	The ratio of drop off value to pick-up value of a relay is known as			
	A	CT ratio	B	Holding ratio
	C	PT Ratio	D	Tripping ratio
263	The directional relay senses			
	A	capacitance	B	inducatnce
	C	impedance	D	power
264	The time interval between the instant of occurrence of fault and closure of relay			
	A	fault clearing time	B	breaker time
	C	relay time	D	action time
265	The time interval between the instant of closure of relay contact and final arc			
	A	fault clearing time	B	breaker time
	C	relay time	D	action time
266	What is used in resonant earthing ?			
	A	resistor	B	GI Pipe
	C	Copper plate	D	Peterson coil reactance
267	A protection system, which responds to the vector difference between two			
	A	Distance Protection Scheme	B	directional protection scheme
	C	Differential protection scheme	D	over reach protection scheme
268	The value of holding ratio of relay is always			
	A	less than 1	B	greater than 1
	C	infinite	D	none of these
269	In which portion of transmission system fault occurs the most			
	A	Under ground cables	B	Over head lines
	C	transformer	D	isolator
270	What is the function of Fault diverters?			
	A	divert the current to earth in the event of short circuit	B	neutralize the surges by resistors
	C	modify the surge wave shape	D	none of these
271	Internal Incipient fault of transformser are detected by			
	A	Thermal relay	B	Directional relay
	C	Buchholz relay	D	Distance relay
272	The RRRV depends upon			
	A	the type of circuit breaker	B	the inductance of the system only
	C	the capacitance of system only	D	the inductance and capacitance of the system

273	Reverse power protection is necessary when the prime mover is a			
	A	steam turbine	B	diesel engine
	C	gas turbine	D	any of the above
274	Bias setting of trnaformer differntial realy cannot avoid mal-operation due to			
	A	external fault	B	CT saturation
	C	CT mismatching	D	over voltage on the source side of the transformer
275	Zero sequence current is exclusively used for relaying purpose only in the case of			
	A	phase overcurrent relay	B	phase impeadence relay
	C	ground overcurrent relay	D	ground impedance relay
276	Impedance relaying scheme calculates the impedance using the			
	A	fundamental components of post fault current	B	transient component of post fault current
	C	fundamental as well as transient component of post fault current	D	none of the above
277	For large induction motors, to detect single phasing condition			
	A	a relay shall depend on positive sequence current measurement	B	a relay shall depend on negative sequence current measurement
	C	a relay shall depend on zero sequence current measurement	D	no special protection is required
278	For more sensitive earth fault protection of an induction motor			
	A	differntial protection scheme shall be provided	B	Inverse time over current relay shall be provided
	C	an instantaneous relay shall be connectd in the secondary of core balance CT	D	Mer price protection shall be used
279	If in a protection schmeme fault current is of 4000 A, CT used is of 100/1 A and			
	A	160	B	80
	C	40	D	20
280	The fault occuring in transmission actually are mostly			
	A	L-G faults	B	L-L-G faults
	C	L-L faults	D	L-L-L faults
281	The burden of over current relay is helpful in deciding			
	A	transformation ratio of CT	B	transfomation ratio of PT
	C	VA rating of CT	D	VA rating of PT
282	An overcurrent relay of current rating 5 A and setting 150 % is connected to a			
	A	100	B	150
	C	200	D	300
283	Which is a relay characteristics has closest resemblence to the charateristics of			
	A	norma inverse characteristics	B	very inverse chacteristics
	C	extremley inverse characteristics	D	all of the above
284	Which of the following protection scheme applied to generator is time delayed ?			
	A	Differential protection	B	Unbalance protection
	C	Stator earth fault protection	D	Rotor earth fault protection
285	Which of the following protection applied to generator is instantaneous			
	A	Field failure protection	B	Under frequency protection
	C	unabalnce protection	D	Turn-to-turn fault protection

286	In differntial protection scheme, a stabilizing resisistance connected to			
	A	block harmonics	B	reduce the effect of non identical CTs
	C	increase the relay sensitiviy	D	none of above
287	The reverse power protection is applied for			
	A	over speeding	B	excitation failure
	C	prime mover failure	D	over fluxing
288	Failure of generator field breaker causes			
	A	over speeding	B	over heating
	C	voltage drop	D	none of the above
289	A harmonic restrain feature used in the realy for transformer protection to ____			
	A	detect external fault	B	avoid mal operation due to magnetizing inrush current
	C	increase the speed of relay	D	none of the above
290	A L-G (line to ground)fault occurs on the star side of a feeder of a 3-phase star-			
	A	L-L faults	B	L-G fault
	C	L-L-G fault	D	L-L-L faults
291	The KPV of Protective CT should _____the KPV of metering CT.			
	A	lower than	B	higher than
	C	double than	D	half of
292	The angle between the phase wires and the ground wire used for lightning			
	A	30	B	45
	C	90	D	75
293	The power tranfer capacity of a line is doubled when degree of the series			
	A	50%	B	70%
	C	90%	D	100%
294	The relay operates in 3 sec when TMS is 0.6, when the TMS is adjusted to 0.4 the			
	A	2 times	B	3 times
	C	4 times	D	5 times
295	The line current in a three phase unbalanced load are Ir= 4 +j6, Ib=2-j2 and Ic= -3			
	A	3 + j6	B	9 + j10
	C	1 + j2	D	3 -j6
296	The tranformer is rated at 11 KV/0.4 KV, 500 kVA and 5% reactnce, the short			
	A	10 MVA	B	11 kVA
	C	110 kVA	D	8 MVA
297	The surge impedance of a 500 km long, 400 KV transmission line is 400 ohms.			
	A	400 MW	B	1600 MW
	C	200 MW	D	2000 MW
298	The synchronous motor improves the power factor of load of 500 kW from 0.6			
	A	102.5 kVAR	B	105 kVAR
	C	100.5 kVAR	D	107.5 kVAR
299	The plug setting of negative sequence relay is 0.2 A, the CT ratio is 5:1. The			
	A	0.707	B	3
	C	1.732	D	5
300	If a new bus is added in the power sustem network then size of the Ybus of N X			
	A	remain same	B	N+1 X N+1
	C	N-1 X N+1	D	N-1 X N-1

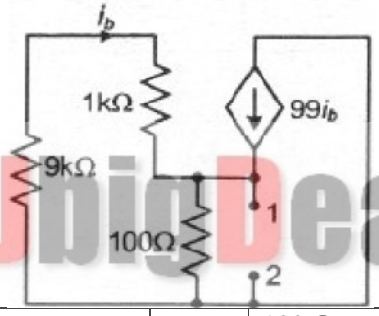
1.	The r.m.s value of the current i(t) in the circuit shown below is 			
	A	$\frac{1}{2}A$	B	$\frac{1}{\sqrt{2}}A$
	C	$1\ A$	D	$\sqrt{2}\ A$
2.	The fourier series expansion $f(t) = a_0 + \sum_{n=1}^{\infty} a_n cos n\omega t + b_n sin n\omega t$ of the periodic signal shown below will contain the following nonzero terms: 			
	A	$a_0\ and\ b_n, n = 1,3,5, \dots, \infty$	B	$a_0\ and\ a_n, n = 1,2,3, \dots, \infty$
	C	$a_0, a_n and\ b_n, n = 1,2,3, \dots, \infty$	D	$a_0\ and\ a_n, n = 1,3,5, \dots, \infty$
3.	In the circuit given below, the value of R required for the transfer of maximum power to the load having a resistance of 3 Ω is: 			
	A	Zero	B	3 Ω
	C	6 Ω	D	Infinity
4.	Given two continuous time signals $x(t) = e^{-t}\ and\ y(t) = e^{-2t}$ which exist for t > 0, the convolution z(t) = x(t) ∗ y(t) is:			
	A	$e^{-t} - e^{-2t}$	B	e^{-3t}
	C	e^{+t}	D	$e^{-t} + e^{-2t}$

5. In the circuit shown below, the power dissipated in the resistor R is:



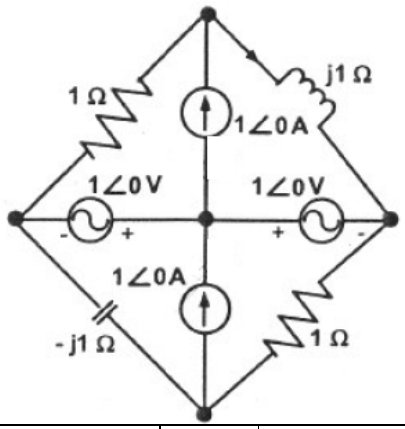
A	0.5 W	B	1 W
C	√2 W	D	2 W

6. The impedance looking into nodes 1 and 2 in the given circuit is:

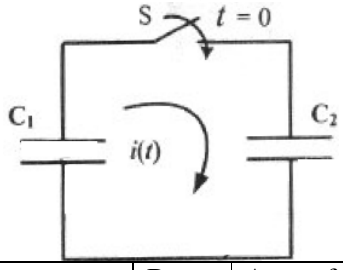
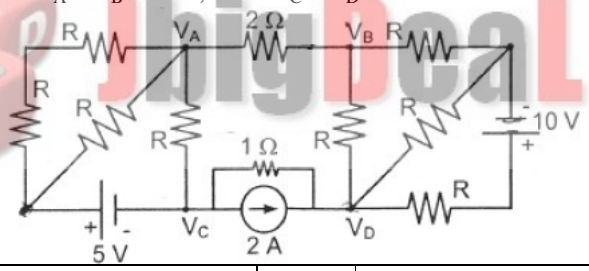
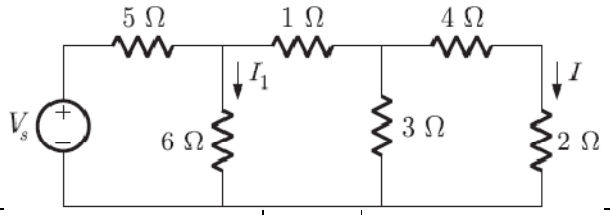


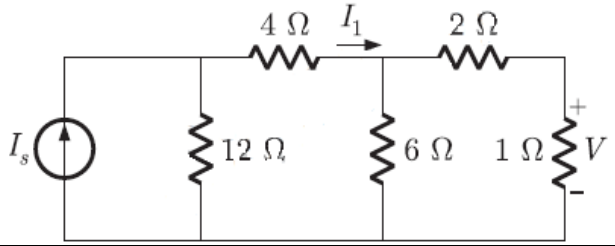
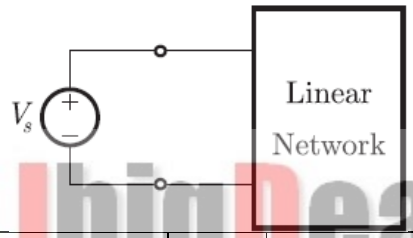
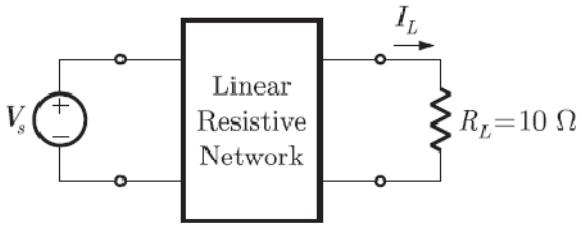
A	50 Ω	B	100 Ω
C	5 kΩ	D	10.1 kΩ

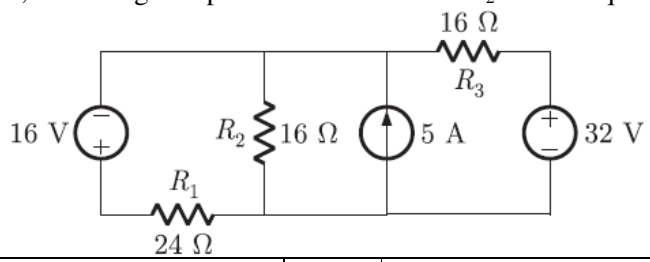
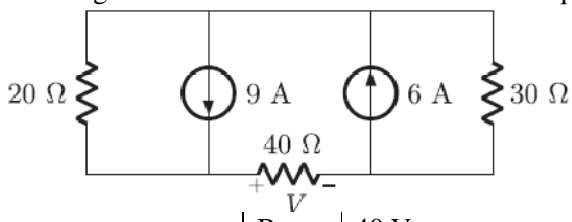
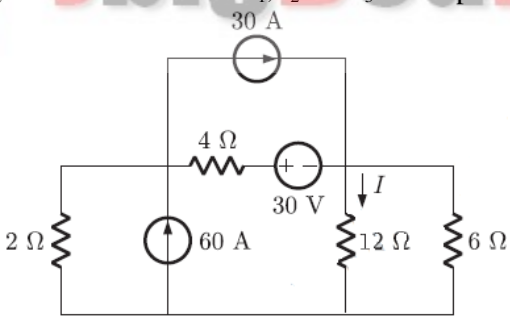
7. In the circuit shown below, the current through the inductor is:

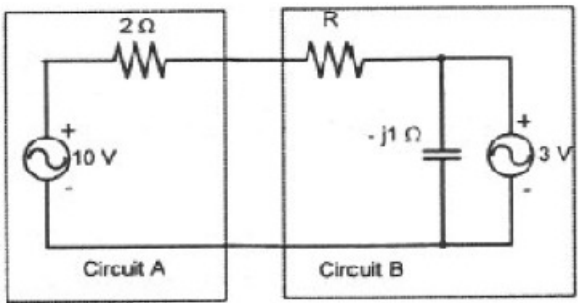
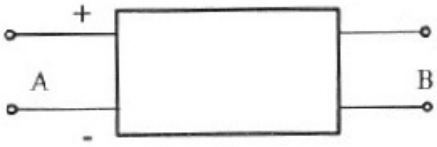
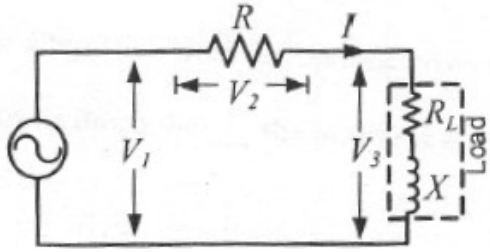


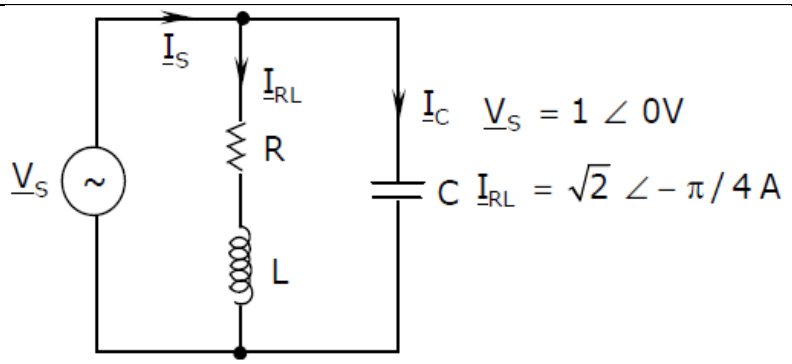
A	$\frac{2}{1+j}A$	B	$\frac{-1}{1+j}A$
C	$\frac{1}{1+j}A$	D	0 A

8.	In the following figure, C_1 and C_2 are ideal capacitors.C_1 has been charged to 12 V before the ideal switch is closed at t = 0. The current i(t) for all t is: 			
	A	Zero	B	A step function
	C	An exponentially decaying function	D	An impulse function
9.	The average power delivered to an impedance $(4 - j3)\Omega$ by a current $5\cos(100\pi t + 100)\ A$ is:			
	A	44.2 W	B	50 W
	C	62.5 W	D	125 W
10.	In the circuit below, if V_A - V_B is 6 V, then V_C - V_D is: 			
	A	-5 V	B	2 V
	C	3 V	D	6 V
11.	In the network of figure, for $V_s = V_0$, I = 1A then what is the value of I_1, if $V_s = 2V_0$? 			
	A	2 A	B	1.5 A
	C	3 A	D	2.5 A

12.	In the network of figure, If $I_s = I_0$ then V = 1 volt. What is the value of I_1 if $I_s = 2I_0$? 			
	A	1.5 A	B	2 A
	C	4.5 A	D	3 A
13.	The linear network in the figure contains resistors and dependent sources only. When V_s = 10 V, the power supplied by the voltage source is 40 W. What will be the power supplied by the source if V_s = 5 V ? 			
	A	20 W	B	10 W
	C	40 W	D	Cannot be determined.
14.	In the circuit below, when V_s = 20 V, I_L = 200 mA. What values of I_L and V_s will be required such that power absorbed by R_L is 2.5 W ? 			
	A	1A, 2.5 V	B	0.5 A, 2 V
	C	0.5 A, 50 V	D	2A, 1.25 V

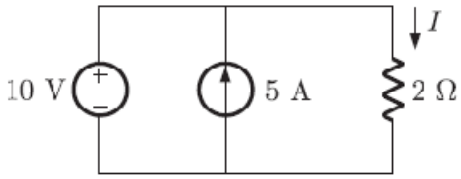
15.	In the circuit below, the voltage drop across the resistance R_2 will be equal to: 			
	A	46 volt	B	38 volt
	C	22 volt	D	14 volt
16.	In the circuit below, the voltage V across the 40 Ω resistor would be equal to: 			
	A	80 V	B	40 V
	C	160 V	D	0 V
17.	In the circuit below, current I = I_1+ I_2+ I_3, where I_1, I_2 and I_3 are currents due to 60 A, 30 A and 30 V sources acting alone. The values of I_1, I_2 and I_3 are respectively: 			
	A	8 A, 8 A, -4 A	B	12 A, 12 A, -5 A
	C	4 A, 4 A, -1 A	D	2 A, 2 A, -4 A

18.	Assuming both voltage sources in the figure below are in phase, the value of R for which maximum power is transferred from circuit A to circuit B is: 			
	A	0.8 Ω	B	1.4 Ω
	C	2 Ω	D	2.8 Ω
19.	With 10 V dc connected at port A in the linear reciprocal network shown below, The following were observed.  1) 1 Ω connected at port B draws a current of 3 A. 2) 2.5 Ω connected at port B draws a current of 2 A. For the same network, with 6 V dc connected at port A, 1 Ω connected at port B draws 7/3 A. If 8 V dc is connected to port A, the open circuit voltage of port B is:			
	A	6 V	B	7 V
	C	8 V	D	9 V
20.	In the circuit shown, the three voltmeter readings are V_1 = 220 V, V_2 = 122 V, V_3 = 136 V.  The power factor of the load is:			
	A	0.45	B	0.5
	C	0.55	D	0.6
21.	The current I_c in the figure below is:			



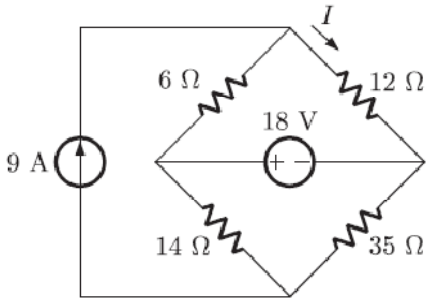
A	□j2 A	B	$-j\frac{1}{\sqrt{2}}A$
C	$+j\frac{1}{\sqrt{2}}A$	D	+j2 A

22. The value of current *I* flowing through 2 Ω resistance in the circuit below equals to:



A	10 A	B	5 A
C	4 A	D	0 A

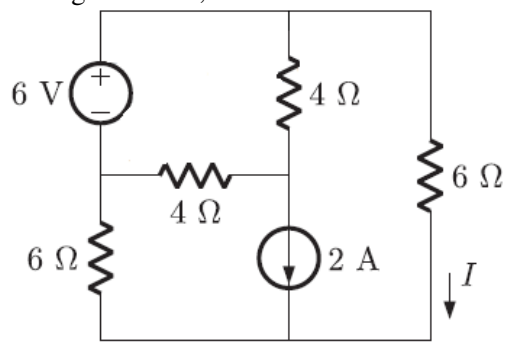
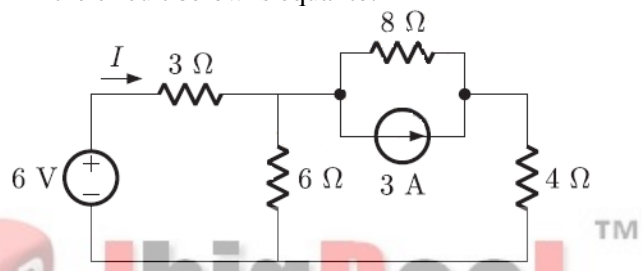
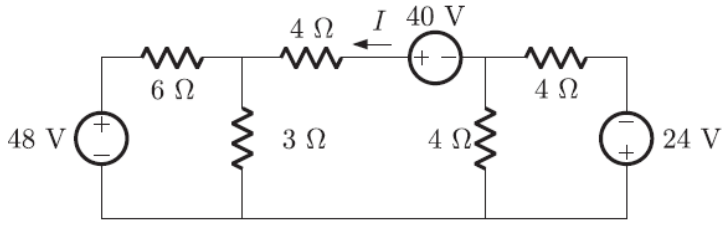
23. In the circuit below, current I is equal to sum of two currents I_1 and I_2 , with current source and voltage source alone respectively, while applying the superposition theorem. What are the values of I_1 and I_2?



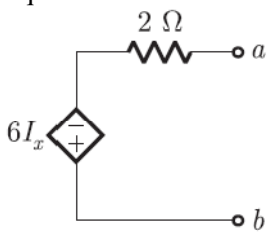
A	6 A, 1 A	B	9 A, 6 A
C	3 A, 1 A	D	3 A, 4 A

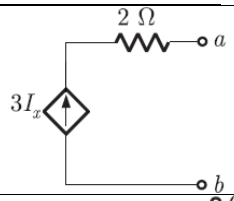
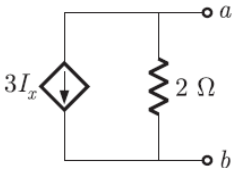
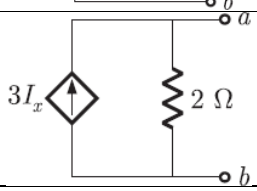
24. A network consists only of independent current sources and resistors. If the values of all the current sources are doubled, then values of node voltages:

A	remains same	B	will be doubled
C	will be halved	D	changes in some other way

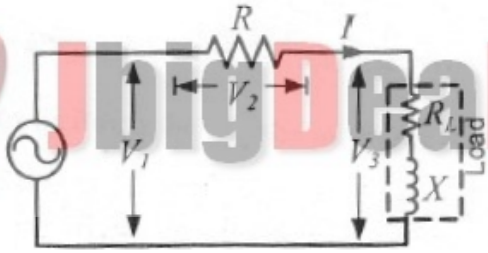
25.	In the circuit shown in the figure below, the value of current *I* will be be given by: 			
	A	1.5 A	B	-0.3 A
	C	0.05 A	D	-0.5 A
26.	The value of current *I* in the circuit below is equal to: 			
	A	2/7 A	B	1 A
	C	2 A	D	4 A
27.	What is the value of current *I* in the circuit shown below ? 			
	A	8.5 A	B	4.5 A
	C	1.5 A	D	5.5 A

28. Which of the following circuits is equivalent to the circuit shown below?



A		B	
C		D	None of these

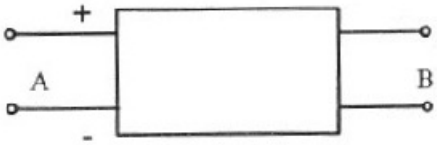
29. In the circuit shown, the three voltmeter readings are V_1 = 220 V, V_2 = 122 V, V_3 = 136 V.



If R_L = 5 Ω, the approximate power consumption in the load is:

A	700 W	B	750 W
C	800 W	D	850 W

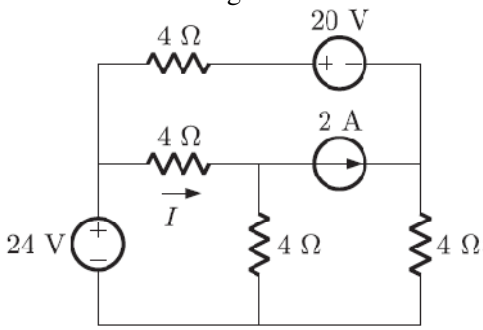
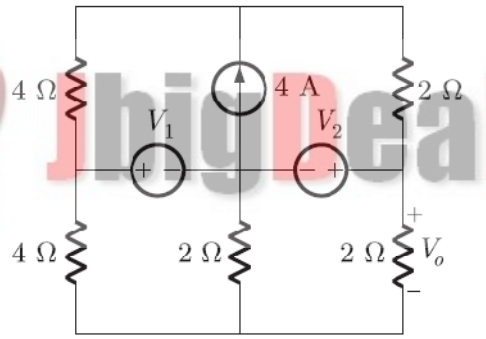
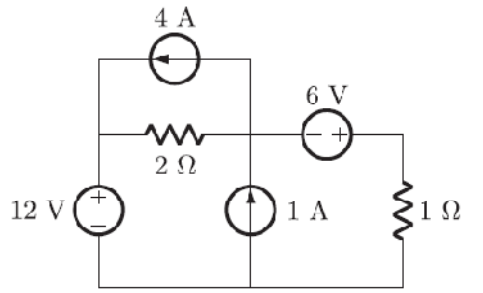
30. With 10 V dc connected at port A in the linear reciprocal network shown below, The following were observed.

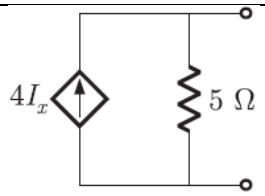


1) 1 Ω connected at port B draws a current of 3 A.
2) 2.5 Ω connected at port B draws a current of 2 A.

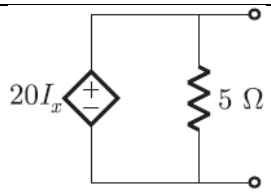
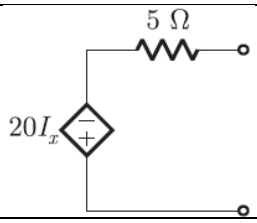
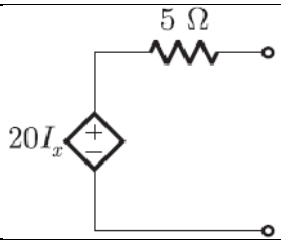
For the same network, with 10 V dc connected at port A, the current drawn by 7 Ω connected at port B is:

A	3/7 A	B	5/7 A
C	1 A	D	9/7 A

31.	What is the value of current I in the following network? 			
	A	4 A	B	6 A
	C	2 A	D	1 A
32.	Consider a network which consists of resistors and voltage sources only. If the values of all the voltage sources are doubled, then the values of mesh current will be			
	A	Doubled	B	Same
	C	Halved	D	None of these
33.	In the given network if $V_1 = V_2 = 0$, then what is the value of V_o? 			
	A	3.2 V	B	8 V
	C	5.33 V	D	Zero
34.	In the circuit below, the 12 V source: 			
	A	absorbs 36 W	B	delivers 4 W
	C	absorbs 100 W	D	delivers 36 W
35.	Consider a dependent current source shown in figure below.			



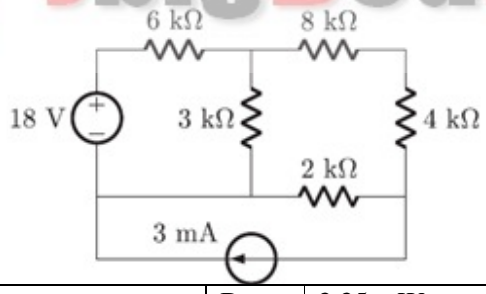
The source transformation of above is given by:

A		B	
C		D	Source transformation is not applicable to dependent sources.

36. The period of signal $x(t) = 8\sin\left(0.8\pi t + \frac{\pi}{4}\right)$ is:

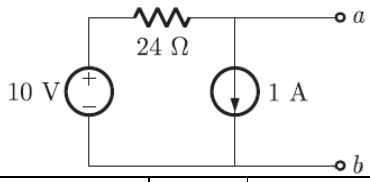
A	0.4π s	B	0.8π s
C	1.25 s	D	2.5 s

37. How much power is being dissipated by the 4 kΩ resistor in the network?



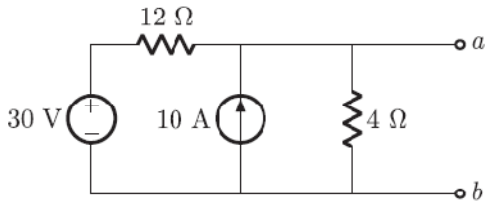
A	0	B	2.25 mW
C	9 mW	D	4 mW

38. For the circuit shown in the figure the Thevenin voltage and resistance seen from the terminal *a-b* are respectively:



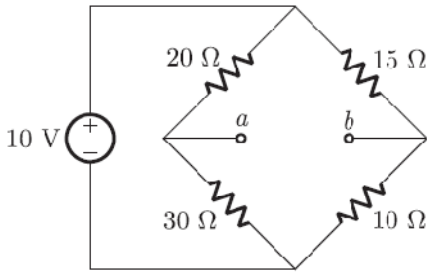
A	34 V, 0 Ω	B	20 V, 24 Ω
C	14 V, 0 Ω	D	−14 V, 24 Ω

39. The Thevenin equivalent resistance R_{Th} between the nodes a and b in the following circuit is:



A	3 Ω	B	16 Ω
C	12 Ω	D	4 Ω

40. In the following circuit, Thevenin voltage and resistance across terminal a and b respectively are:



A	10 V, 18 Ω	B	2 V, 18 Ω
C	10 V, 18.67 Ω	D	2 V, 18.67 Ω

41. What values of R_{Th} and V_{Th} will cause the circuit of figure (B) to be the equivalent circuit of figure (A)?

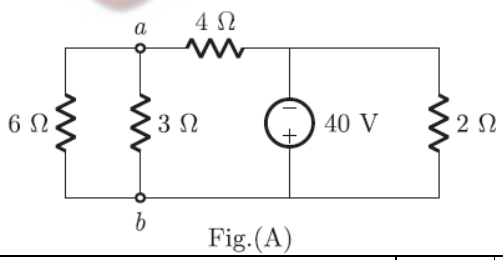


Fig.(A)

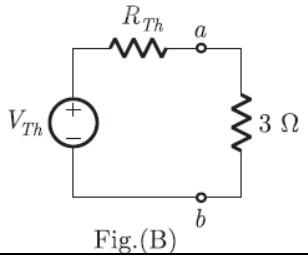


Fig.(B)

A	2.4 Ω, –24 V	B	3 Ω, 16 V
C	10 Ω, 24 V	D	10 Ω, –24 V

42. Consider the two circuits shown in figure (A) and figure (B) below:

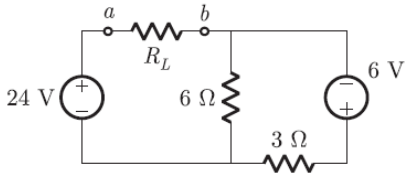


Fig.(A)

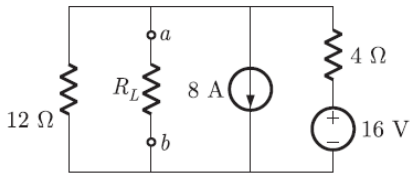
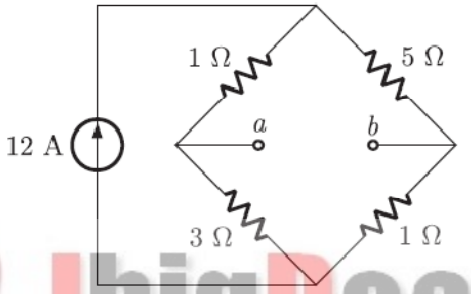


Fig.(B)

The value of Thevenin voltage across terminals *a-b* of figure (A) and figure (B) respectively are:

A	30 V, 36 V	B	28 V, −12 V
C	18 V, 12 V	D	30 V, −12 V

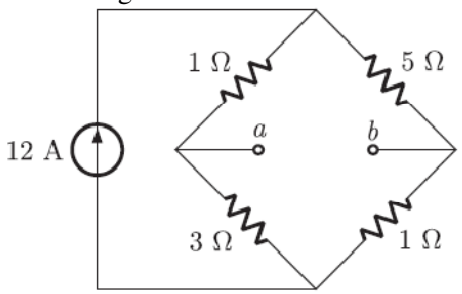
43. Consider the circuit shown in the figure.



The equivalent Thevenin voltage across terminal *a-b* is:

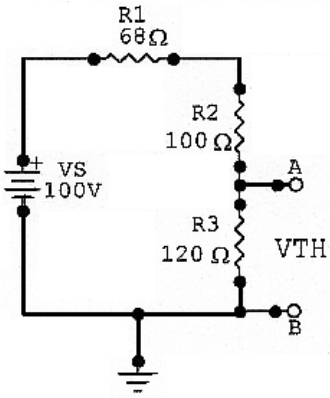
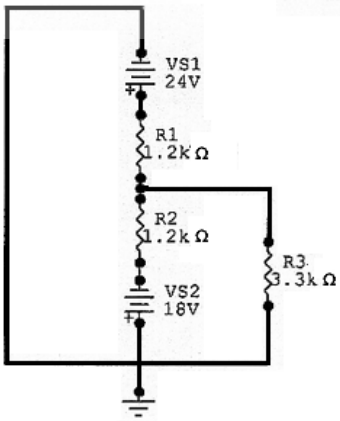
A	31.2 V	B	19.2 V
C	16.8 V	D	24 V

44. Consider the circuit shown in the figure.



The Norton equivalent current with respect to terminal *a-b* is:

A	13 A	B	7 A
C	8A	D	10 A

45.	Find the Thevenin equivalent (V_{TH} and R_{TH}) between terminals A and B of the circuit given below. 			
	A	4.16 V, 120 Ω	B	41.6 V, 120 Ω
	C	4.16 V, 70 Ω	D	41.67 V, 70 Ω
46.	A certain current source has the values I_S = 4 μA and R_S = 1.2 MΩ. The values for an equivalent voltage source are:			
	A	4.8 μV, 1.2 MΩ	B	1 V, 1.2 MΩ
	C	4.8 V, 4.8 MΩ	D	4.8 V, 1.2 MΩ
47.	Find the total current through R_3 in the given circuit. 			
	A	7.3 mA	B	5.5 mA
	C	12.8 mA	D	0.769 mA
48.	A 680 Ω load resistor, R_L, is connected across a constant current source of 1.2 A. The internal source resistance, R_S, is 12 kΩ. The load current, R_L, is			
	A	Zero	B	0.766 A
	C	114 mA	D	1.2 A

49. The value of R_{Th} and V_{Th} such that the circuit of figure (B) is the Thevenin equivalent circuit of the circuit shown in figure (A), will be equal to:

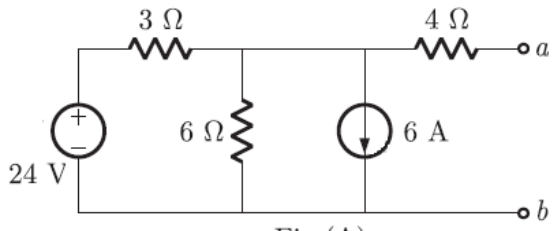


Fig.(A)

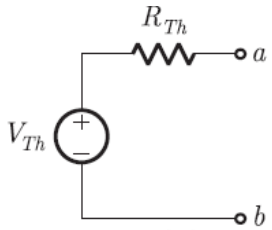


Fig.(B)

A	6 Ω, 4 V	B	4 Ω, 6 V
C	6 Ω, 6 V	D	4 Ω, 4 V

50. Consider the two circuits shown in figure (A) and figure (B) below:

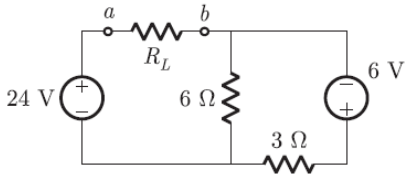


Fig.(A)

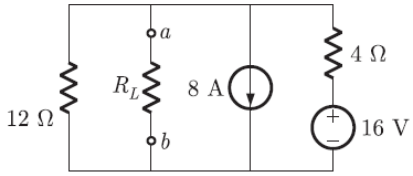
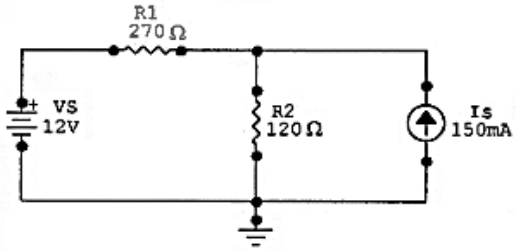


Fig.(B)

The value of Thevenin resistance across terminals *a-b* of figure (A) and figure (B) respectively are:

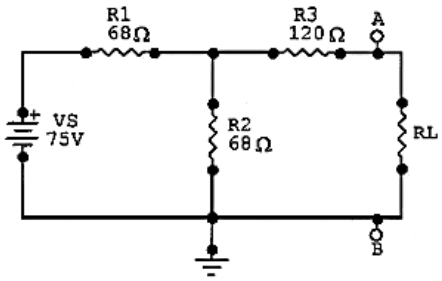
A	zero, 3 Ω	B	9 Ω, 16 Ω
C	2 Ω, 3 Ω	D	zero, 16 Ω

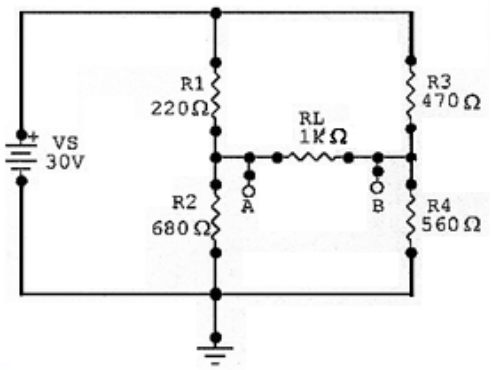
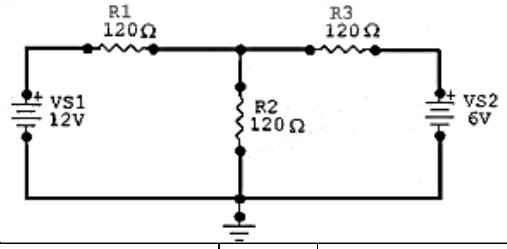
51. Find the current through R_2 of the given circuit.

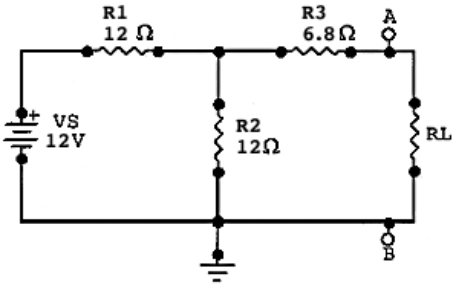
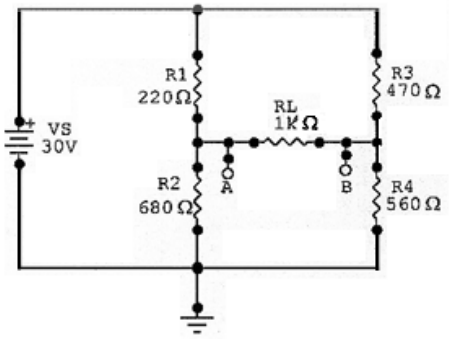


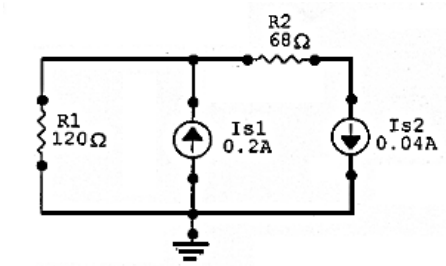
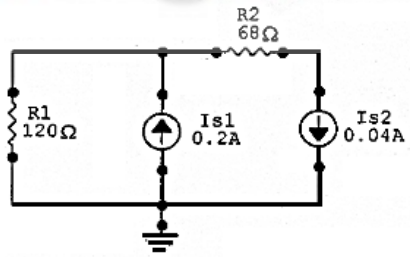
A	134 mA	B	104 mA
C	74 mA	D	30.7 mA

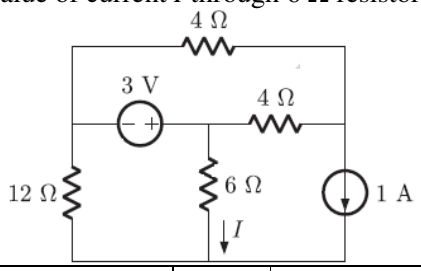
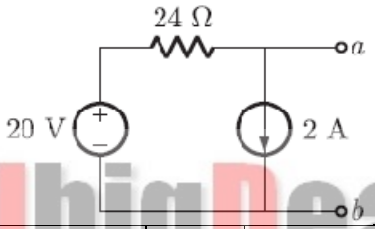
52. Determine I_N for the circuit consisting of V_S, R_1, R_2, and R_3 shown in the given circuit.



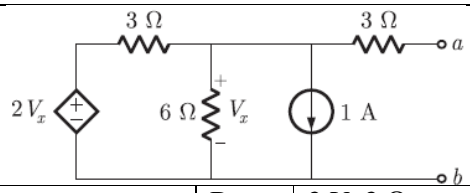
	A	676 mA	B	245 mA
	C	431 mA	D	75 mA
53.	A 120 V voltage source has a source resistance, R_S, of 60 Ω. The equivalent current source is			
	A	2 A	B	4 A
	C	200 mA	D	400 mA
54.	What is the Thevenin equivalent (V_{TH} and R_{TH}) for the circuit given? 			
	A	6.4 V, 560 Ω	B	6.4 V, 422 Ω
	C	6.4 V, 680 Ω	D	30 V, 422 Ω
55.	Find the current in R_2 of the given circuit, using the superposition theorem. 			
	A	16.7 mA	B	33.3 mA
	C	50 mA	D	16.6 mA
56.	A 470 Ω R_L is connected across a voltage source, V_S, of 120 V. The source's internal resistance, R_S, is 12 Ω. What is the output voltage across the load?			
	A	120 V	B	Zero
	C	12 V	D	117 V

57.	Find the Norton circuit, that is, I_N and R_N, for the circuit given below. 			
	A	478 mA, 12.8 Ω	B	750 mA, 12.8 Ω
	C	478 mA, 6.8 Ω	D	750 mA, 6.8 Ω
58.	A certain voltage source has the values V_S = 30 V and R_S = 6 Ω. The values for an equivalent current source are			
	A	5 A, 6 Ω	B	30 A, 6 Ω
	C	5 A, 30 Ω	D	30 A, 5 Ω
59.	A 12 V source has an internal resistance of 90 Ω. If a load resistance of 20 Ω is connected to the voltage source, the load power, P_L, is			
	A	2.38 mW	B	2.38 W
	C	238 mW	D	23.8 W
60.	Referring to the given circuit, the voltage and current for the load resistor, R_L, is 			
	A	450 mV, 4.5 mA	B	4.50 V, 45 mA
	C	450 mV, 45 mA	D	4.50 V, 4.5 mA
61.	A 2 Ω R_L is connected across a voltage source, V_S, of 110 V. The source's internal resistance is 24 Ω. What is the output voltage across the load?			
	A	8.5 V	B	85 V
	C	Zero	D	110 V

62.	Consider a star network in which three resistances R_a, R_b and R_c are connected to terminals A, B and C respectively. The resistance between terminals A and B with C open is 6 Ω, between B and C with A open is 11 Ω, and between C and A with B open is 9 Ω. Then			
	A	R_a= 4 Ω, R_b= 2 Ω, R_c= 5Ω	B	R_a= 2Ω, R_b= 4Ω, R_c= 7Ω
	C	R_a= 3 Ω, R_b=3 Ω, R_c= 4Ω	D	R_a= 5Ω, R_b= 1 Ω, R_c= 10Ω
63.	Referring to circuit given, if R_1 is changed to a 68 Ω resistor, what will be the current through it? 			
	A	0.16 A	B	0.24 A
	C	0.2 A	D	0.04 A
64.	An 18 V source has an internal resistance of 70 Ω. If a load resistance of 33 Ω is connected to the voltage source, the load power, P_L, is			
	A	Zero	B	1 W
	C	175 mW	D	18 mW
65.	Find the current through R_1 in the given circuit. 			
	A	0.16 A	B	0.24 A
	C	0.2 A	D	0.04 A
66.	In a two-source circuit, one source acting alone produces 12 mA through a given branch. The other source acting alone produces 10 mA in the opposite direction through the same branch. The actual current through the branch is			
	A	22 mA	B	12 mA
	C	10 mA	D	2 mA
67.	For a network having resistors and independent sources, it is desired to obtain Thevenin equivalent across the load which is in parallel with an ideal current source. Then which of the following statement is true?			
	A	The Thevenin equivalent circuit is simply that of a voltage source.	B	The Thevenin equivalent circuit consists of a voltage source and a series resistor.

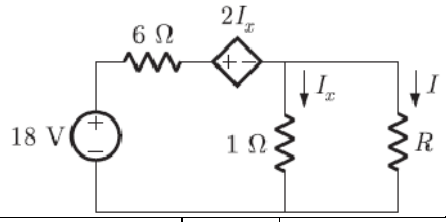
	C	The Thevenin equivalent circuit does not exist but the Norton equivalent does exist.	D	None of these
68.	In the following network, value of current I through 6 Ω resistor is given by: 			
	A	0.83 A	B	2 A
	C	1 A	D	-0.5 A
69.	In the circuit shown below, the Norton equivalent current and resistance with respect to terminal *a-b* is: 			
	A	17/6 A, 0 Ω	B	2 A, 24 Ω
	C	-7/6 A, 24 Ω	D	-2 A, 24 Ω
70.	For a network consisting of resistors and independent sources only, it is desired to obtain Thevenin's or Norton's equivalent across a load which is in parallel with an ideal voltage sources. Consider the following statements: 1. Thevenin equivalent circuit across this terminal does not exist. 2. Thevenin equivalent circuit exists and it's simply that of a voltage source. 3. Norton equivalent circuit for this terminal does not exist. Which of the above statements is/are true ?			
	A	1 and 3	B	1
	C	2 and 3	D	3

71.	For the circuit shown in the figure, the Thevenin's voltage and resistance looking into *a-b* are:



A	2 V, 3 Ω	B	2 V, 2 Ω
C	6 V, –9 Ω	D	6 V, –3 Ω

72. For the circuit below, what value of R will cause I = 3 A?

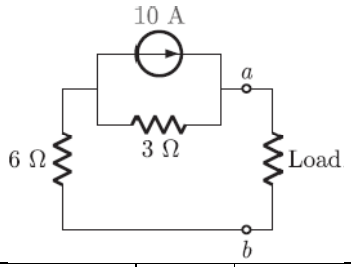


A	2/3 Ω	B	4 Ω
C	Zero	D	None of these

73. The Thevenin equivalent circuit of a network consists only of a resistor (Thevenin voltage is zero). Then which of the following elements might be contained in the network?

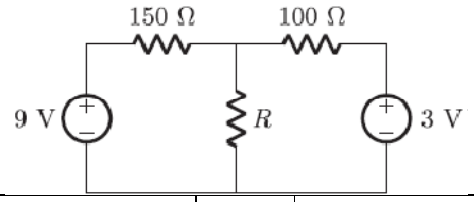
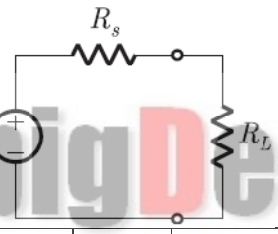
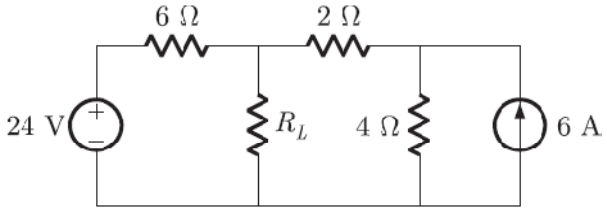
A	resistor and independent sources	B	resistor only
C	resistor and dependent sources	D	resistor, independent sources and dependent sources

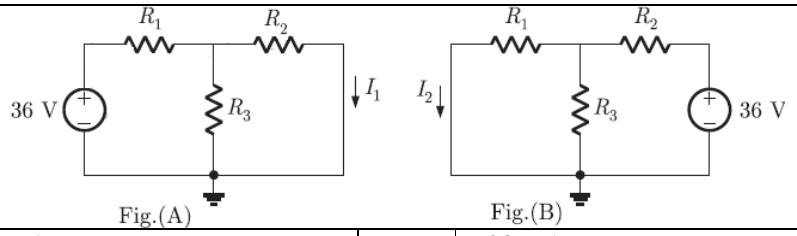
74. What are the values of equivalent Norton current source (I_N) and equivalent resistance (R_N) across the load terminal of the circuit shown in figure?



A	10 A, 2 Ω	B	3.33 A, 9 Ω
C	10 A, 9 Ω	D	6.66 A, 2 Ω

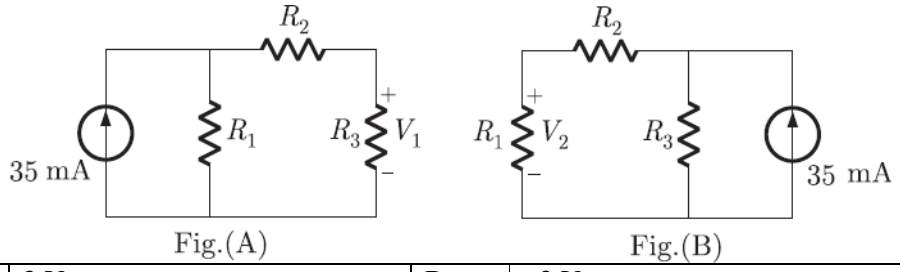
75. For a network consisting of resistors and independent sources only, it is desired to obtain Thevenin's or Norton's equivalent across a load which is in series with an ideal current sources.
Consider the following statements

	• Norton equivalent across this terminal is not feasible. • Norton equivalent circuit exists and it is simply that of a current source only. • Thevenin's equivalent circuit across this terminal is not feasible. Which of the above statements is/are correct ?			
	A	1 and 3	B	2 and 3
	C	1 only	D	3 only
76.	The maximum power that can be transferred to the resistance R in the circuit is 			
	A	486 mW	B	243mW
	C	121.5mW	D	225mW
77.	In the circuit below, if R_L is fixed and R_s is variable then for what value of R_s power dissipated in R_L will be maximum? 			
	A	$R_S = R_L$	B	$R_S = 0$
	C	$R_S = R_L/2$	D	$R_S = 2R_L$
78.	In the circuit shown below the maximum power transferred to R_L is P_{max}, t hen: 			
	A	$R_L = 12\ \Omega$, $P_{max} = 12$ W	B	$R_L = 3\ \Omega$, $P_{max} = 96$ W
	C	$R_L = 3\ \Omega$, $P_{max} = 48$ W	D	$R_L = 12\ \Omega$, $P_{max} = 24$ W
79.	In the circuit of figure (A), if $I_1 = 20$ mA, then what is the value of current I_2 in the circuit of figure (B)?			



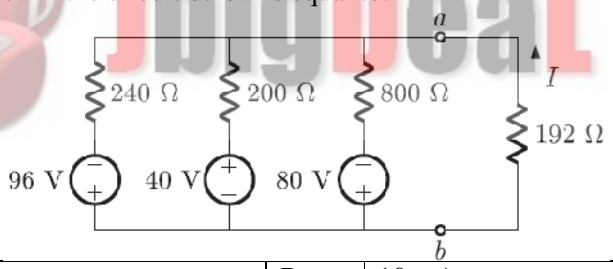
A	40 mA	B	−20 mA
C	20 mA	D	$R1$, $R2$ and $R3$ must be known

80. If $V_1 = 2$ V in the circuit of figure (A), then what is the value of V_2 in the circuit of figure (B)?



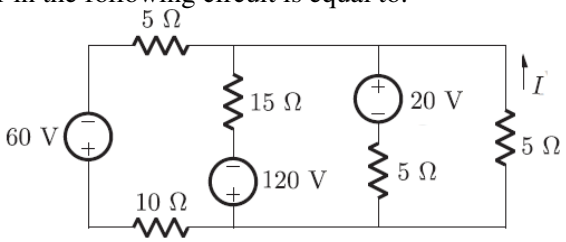
A	2 V	B	−2 V
C	4 V	D	$R1$, $R2$ and $R3$ must be known

81. The value of current I in the circuit below is equal to:



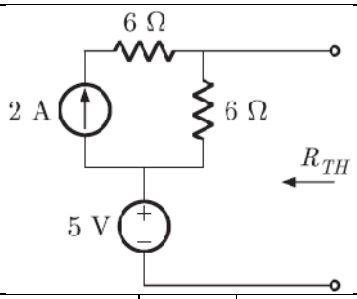
A	100 mA	B	10 mA
C	233.34 mA	D	None of these

82. The value of current I in the following circuit is equal to:



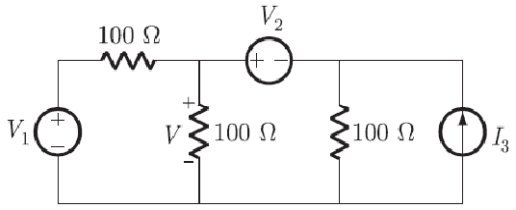
A	1 A	B	6 A
C	3 A	D	2 A

83. For the following circuit the value of R_{Th} is:



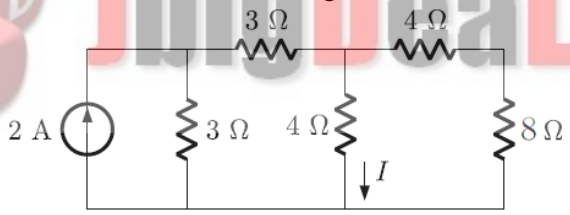
A	3 Ω	B	12 Ω
C	6 Ω	D	∞

84. If $V = AV_1 + BV_2 + CI_3$ in the following circuit, then values of A, B and C respectively are:



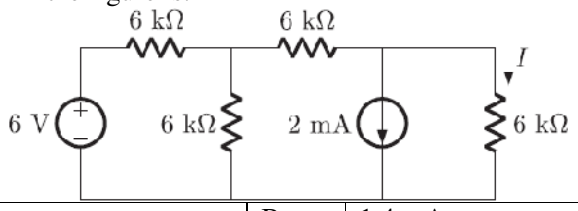
A	$\frac{2}{3}, \frac{2}{3}, \frac{1}{3}$	B	$\frac{1}{3}, \frac{1}{3}, \frac{100}{3}$
C	$\frac{1}{2}, \frac{1}{2}, \frac{1}{3}$	D	$\frac{1}{3}, \frac{2}{3}, \frac{100}{3}$

85. What is the value of current I in the network of figure?



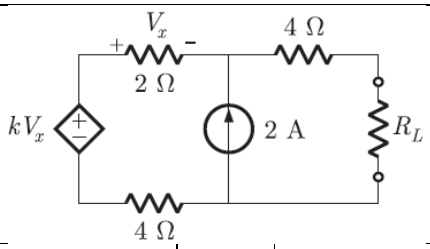
A	0.67 A	B	2 A
C	1.34 A	D	0.5 A

86. The value of current I in the figure is:



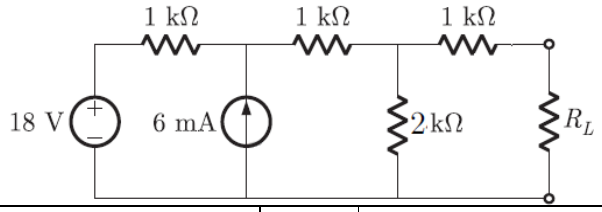
A	−1mA	B	1.4 mA
C	1.8 mA	D	−1.2mA

87. In the circuit below, for what value of k, load $R_L = 2\ \Omega$ absorbs maximum power?



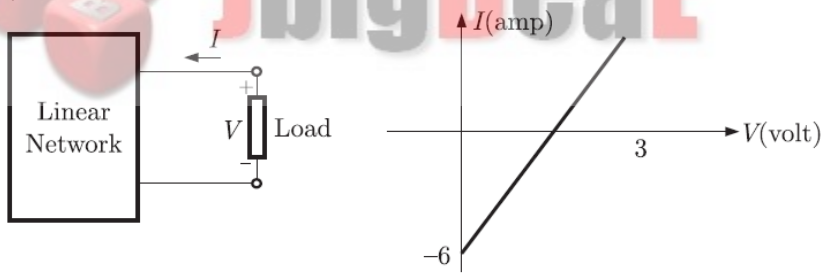
A	4	B	7
C	2	D	6

88. In the circuit shown below, the maximum power that can be delivered to the load R_L is equal to:



A	72mW	B	36mW
C	24mW	D	18mW

89. For the linear network shown below, *V-I* characteristic is also given in the figure. The load voltage when current I is zero is 3 V. The value of Norton equivalent current and resistance respectively are:

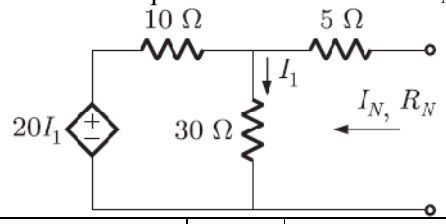


A	3A, 2 Ω	B	6 A, 2 Ω
C	6A, 0.5 Ω	D	3A, 0.5 Ω

90. A practical DC current source provides 20 kW to a 50 Ω load and 20 kW to a 200 Ω load. The maximum power, that can drawn from it, is:

A	22.5 kW	B	45 kW
C	30.3 kW	D	40 kW

91. For the following circuit the value of equivalent Norton current I_N and resistance R_N are:



A	2 A, 20 Ω	B	2 A, –20 Ω
C	0 A, 20 Ω	D	0 A, –20 Ω

92. Consider the following circuits shown below:

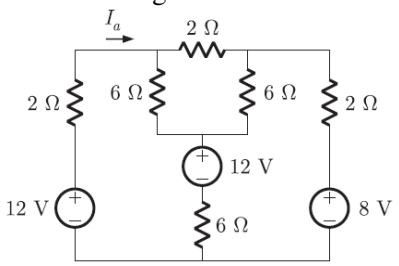


Fig (A)

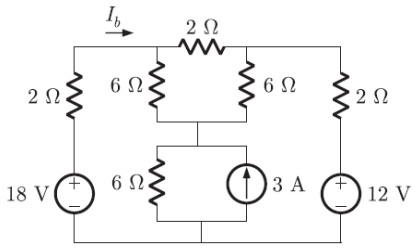
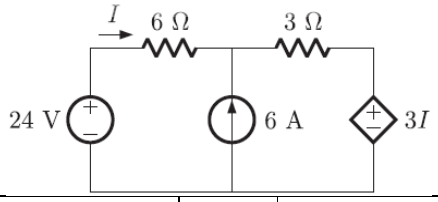


Fig (B)

The relation between I_a and I_b is:

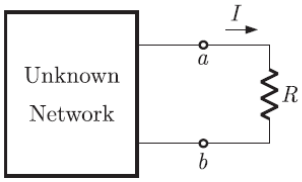
A	$I_b = I_a + 6$	B	$I_b = I_a + 2$
C	$I_b = 1.5I_a$	D	$I_b = I_a$

93. For the following circuit, value of current I is given by:



A	0.5 A	B	3.5 A
C	1 A	D	2 A

94. In the following circuit, some measurements were made at the terminals *a*, *b* and given in the table below.

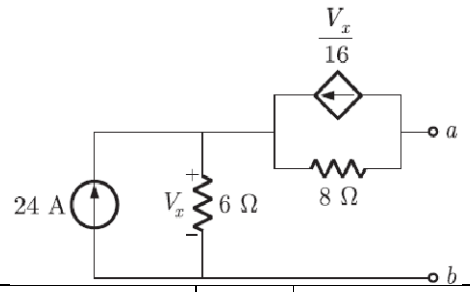


R	I
3 Ω	2 A
5 Ω	1.6 A

The Thevenin equivalent of the unknown network across terminal *a*-*b* is:

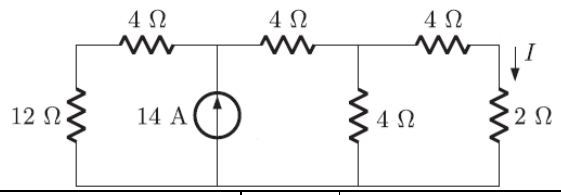
A	3 Ω, 14 V	B	5 Ω, 16 V
C	16 Ω, 38 V	D	10 Ω, 26 V

95. The Thevenin equivalent resistance between terminal a and b in the following circuit is:



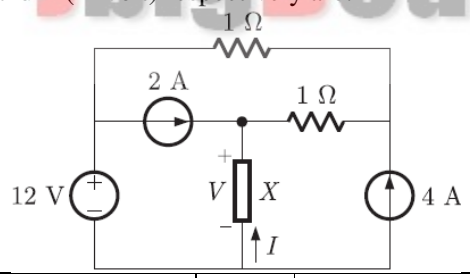
A	22 Ω	B	11 Ω
C	17 Ω	D	1 Ω

96. In the circuit shown below, the value of current I will be given by:



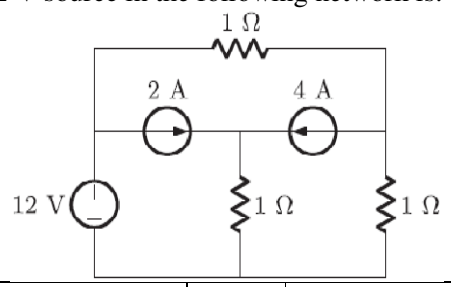
A	2.5 A	B	1.5 A
C	4 A	D	2 A

97. The V -I relation of the unknown element X in the given network is $V = AI + B$. The value of A (in ohm) and B (in volt) respectively are:



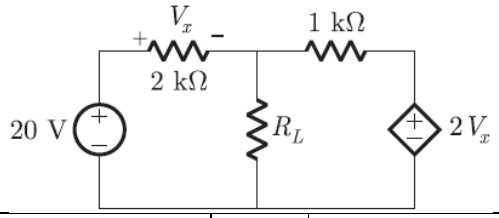
A	2, 20	B	2, 8
C	0.5, 4	D	0.5, 16

98. The power delivered by 12 V source in the following network is:



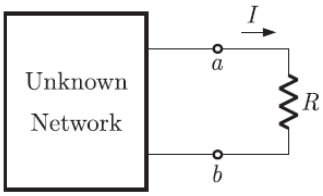
A	24 W	B	96 W
C	120 W	D	48 W

99. In the circuit shown, what value of R_L maximizes the power delivered to R_L?



A	286 Ω	B	350 Ω
C	Zero	D	500 Ω

100. In the following circuit, some measurements were made at the terminals a, b and given in the table below.

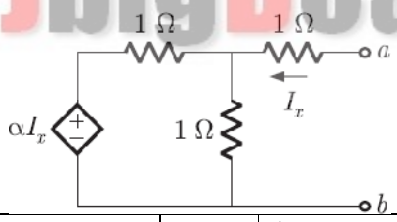


R	I
3 Ω	2 A
5 Ω	1.6 A

The value of R that will cause I to be 1A, is:

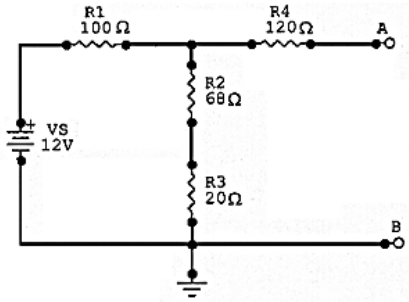
A	22 Ω	B	16 Ω
C	8 Ω	D	11 Ω

101. In the following circuit equivalent Thevenin resistance between nodes a and b is $R_{Th} = 3\ \Omega$. The value of α is:

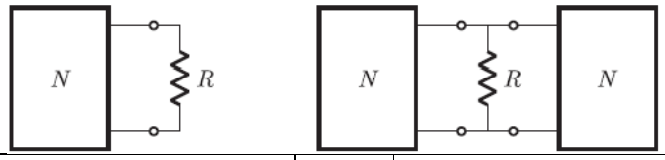
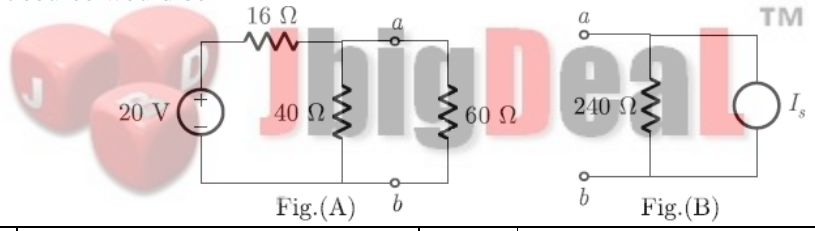
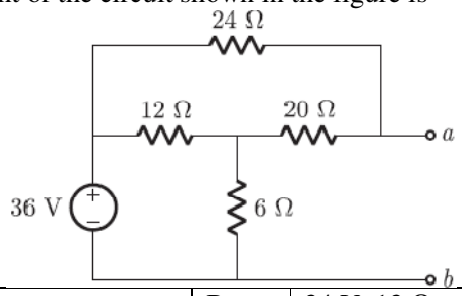


A	2	B	1
C	3	D	4

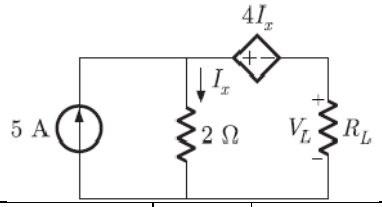
102. Find the Thevenin equivalent (V_{TH} and R_{TH}) between terminals A and B of the circuit given.



A	562 mV, 167 Ω	B	5.62 V, 167 Ω

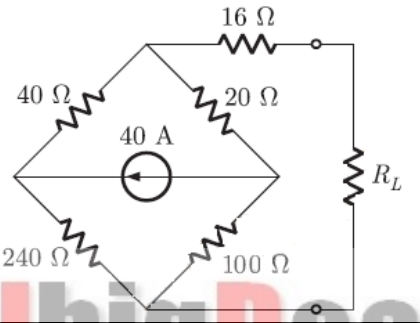
	C	5.62 V, 188 Ω	D	562 mV, 188 Ω
103.	A certain network consists of a large number of ideal linear resistors, one of which is R and two constant ideal sources. The power consumed by R is $P1$ when only the first source is active and $P2$ when only the second source is active. If both sources are active simultaneously, then the power consumed by R is			
	A	$P_1 \pm P_2$	B	$\sqrt{P_1} \pm \sqrt{P_2}$
	C	$(\sqrt{P_1} \pm \sqrt{P_2})^2$	D	$(P_1 \pm P_2)^2$
104.	A network N feeds a resistance R as shown in circuit below. Let the power consumed by R be P. If an identical network is added as shown in figure, the power consumed by R will be 			
	A	equal to P	B	less than P
	C	between P and $4P$	D	more than $4P$
105.	If the 60 Ω resistance in the circuit of figure (A) is to be replaced with a current source I_s and 240 Ω shunt resistor as shown in figure (B), then magnitude and direction of required current source would be 			
	A	200 mA, upward	B	150 mA, downward
	C	50 mA, downward	D	150 mA, upward
106.	The Thevenin's equivalent of the circuit shown in the figure is 			
	A	4 V, 48 Ω	B	24 V, 12 Ω
	C	24 V, 24 Ω	D	12 V, 12 Ω

107. The voltage VL across the load resistance in the figure is given by $V_L = V(\frac{R_L}{R+R_L})$. V and R will be equal to:



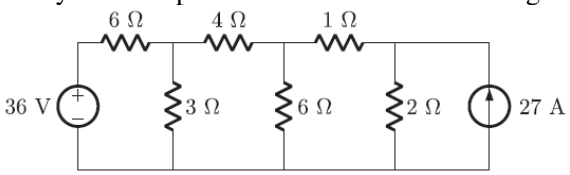
A	−10 V, 2 Ω	B	10 V, 2 Ω
C	−10 V, −2 Ω	D	none of these

108. The maximum power that can be transferred to the load resistor R_L from the current source in the figure is



A	4 W	B	8 W
C	16 W	D	2 W

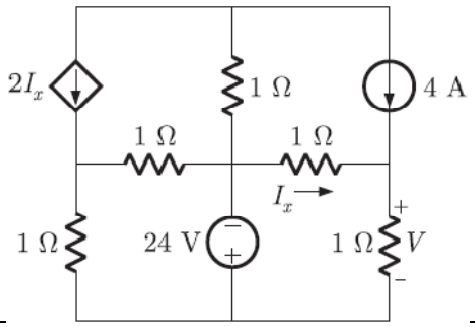
109. An electric circuit is fed by two independent sources as shown in figure.

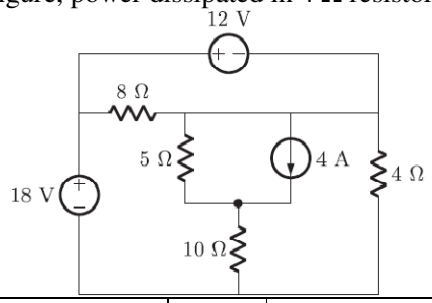
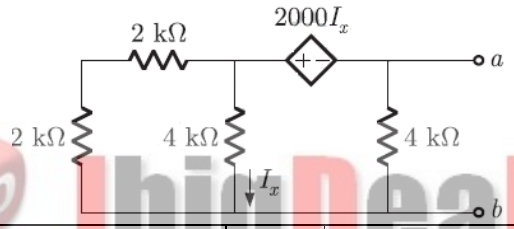
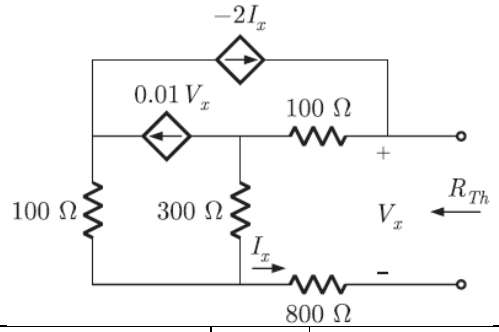


The power supplied by 36 V source will be

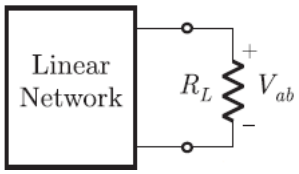
A	108W	B	162W
C	129.6W	D	216W

110. What is the value of voltage V in the following network ?



	A	14 V	B	28 V
	C	-10 V	D	None of these
111.	In the circuit shown in the figure, power dissipated in 4 Ω resistor is 			
	A	225 W	B	121 W
	C	9 W	D	None of these
112.	In the circuit given below, viewed from *a-b*, the circuit can be reduced to an equivalent circuit as: 			
	A	10 volt source in series with 2 kΩ resistor	B	1250 Ω resistor only
	C	20 V source in series with 1333.34 Ω resistor	D	800 Ω resistor only
113.	For the circuit shown in figure below the value of R_{Th} is: 			
	A	100 Ω	B	136.4 Ω
	C	200 Ω	D	272.8 Ω

114. Consider the network shown below:



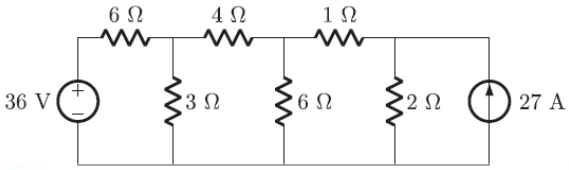
The power absorbed by load resistance R_L is shown in table:

R_L	10 kΩ	30 kΩ
P	3.6 mW	4.8 mW

The value of R_L, that would absorb maximum power, is

A	60 kΩ	B	100 Ω
C	300 Ω	D	30 kΩ

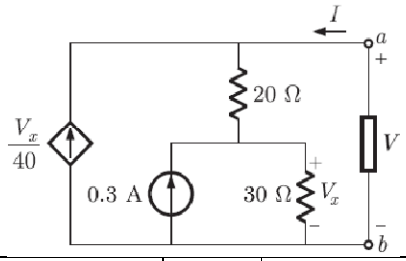
115. An electric circuit is fed by two independent sources as shown in figure.



The power supplied by 27 A source will be

A	972W	B	1083W
C	1458W	D	1026W

116. The V -I equation for the network shown in figure, is given by

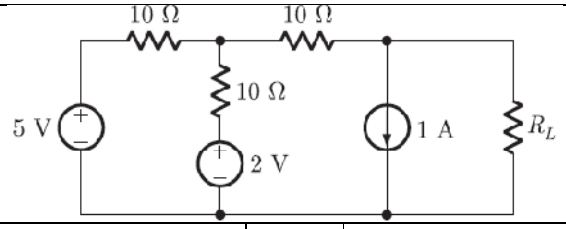


A	$7V = 200I + 54$	B	$V = 100I + 36$
C	$V = 200I + 54$	D	$V = 50I + 54$

117. The voltage across a 20 μF capacitor varies with time and is given by $v_c = 10.75 - 1.5e^{-1000t}$ V. What is the current through the capacitor?

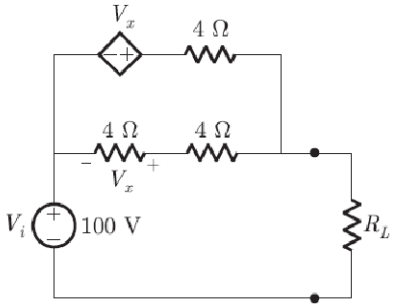
A	$0.3e^{-1000t}$	B	$0.03e^{-1000t}$
C	$0.5e^{-1000t}$	D	$0.05e^{-1000t}$

118. In the circuit shown below, the value of R_L such that the power transferred to R_L is maximum is:



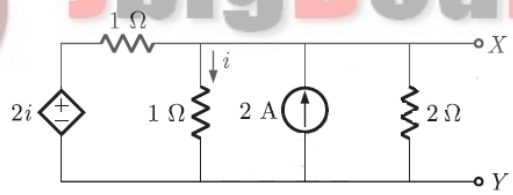
A	5 Ω	B	10 Ω
C	15 Ω	D	20 Ω

119. In the circuit shown, what value of R_L maximizes the power delivered to R_L?



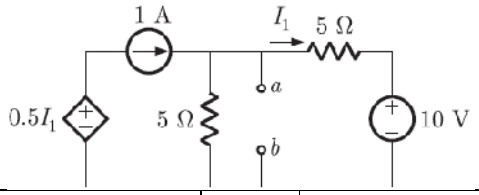
A	2.4 Ω	B	8/3 Ω
C	4 Ω	D	6 Ω

120. For the circuit shown in the figure, the Thevenin voltage and resistance looking into *X-Y* are:



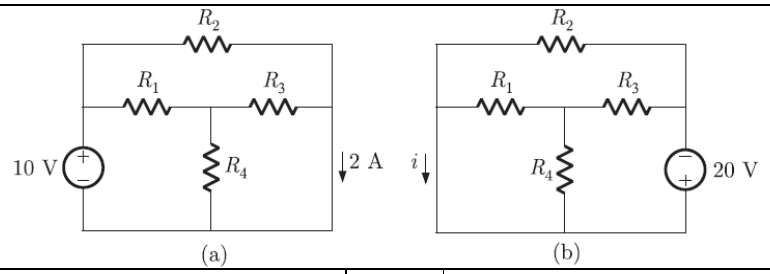
A	$\frac{4}{3}V, 2\ \Omega$	B	$4\ V, \frac{2}{3}\ \Omega$
C	$\frac{4}{3}V, \frac{2}{3}\ \Omega$	D	4 V, 2 Ω

121. For the circuit shown in the figure, Thevenin's voltage and Thevenin's equivalent resistance at terminals *a-b* is:



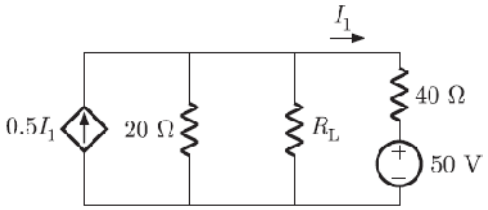
A	5 V and 2Ω	B	7.5 V and 2.5Ω
C	4 V and 2Ω	D	3 V and 2.5Ω

122. Use the data of the figure (a). The current *i* in the circuit of the figure (b):



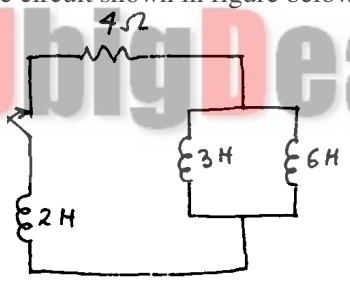
A	-2 A	B	2 A
C	-4 A	D	4 A

123. In the network of the figure, the maximum power is delivered to R_L if its value is



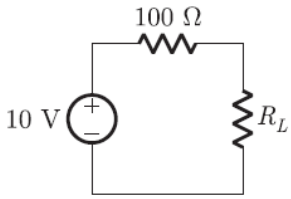
A	16 Ω	B	40/3 Ω
C	60 Ω	D	20 Ω

124. What is the time constant of the circuit shown in figure below when the switch is closed?



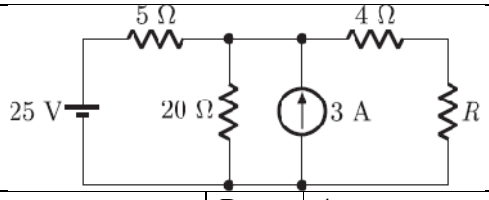
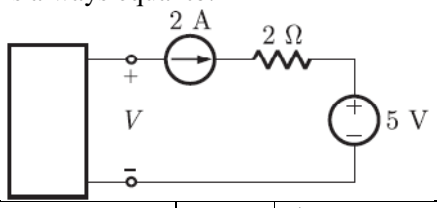
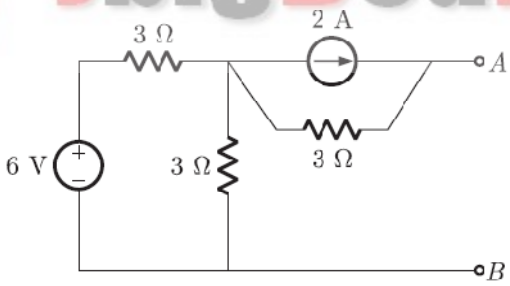
A	0.5 s	B	2 s
C	3.75 s	D	1 s

125. The maximum power that can be transferred to the load resistor R_L from the voltage source in the figure is:



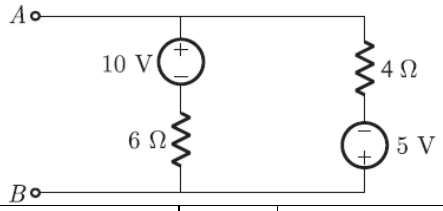
A	1 W	B	10 W
C	0.25 W	D	0.5 W

126. The value of R (in ohms) required for maximum power transfer in the network shown in the given figure is:

				
	A	2	B	4
	C	8	D	16
127.	Superposition theorem is NOT applicable to networks containing			
	A	nonlinear elements	B	dependent voltage sources
	C	dependent current sources	D	transformers
128.	The voltage V in the figure is always equal to: 			
	A	9 V	B	5 V
	C	1 V	D	None of the above.
129.	For the circuit shown in figure, the Norton equivalent source current value and and its resistance is: 			
	A	2 A, $\frac{3}{2}\Omega$	B	2 A, $\frac{9}{2}\ \Omega$
	C	4 A, $\frac{3}{2}\ \Omega$	D	4 A, $\frac{3}{4}\ \Omega$

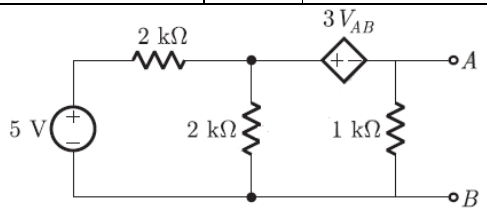
130.	Viewed from the terminals A-B, the following circuit shown in figure can be reduced to an

equivalent circuit of a single voltage source in series with a single resistor with the following parameters:



A	5 volt source in series with 10 Ω resistor	B	1 volt source in series with 2.4 Ω resistor
C	15 volt source in series with 2.4 Ω resistor	D	1 volt source in series with 10 Ω resistor

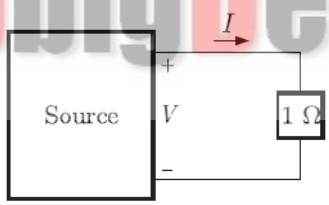
131.



For the circuit given above, the Thevenin's resistance across the terminals *A* and *B* is:

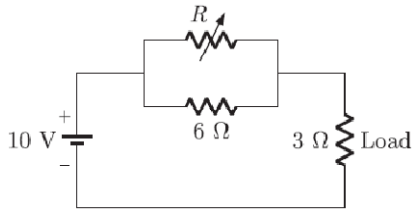
A	0.5 kΩ	B	0.2 kΩ
C	1 kΩ	D	0.11 kΩ

132. As shown in the figure, a 1Ω resistance is connected across a source that has a load line $V + I = 100$. The current through the resistance is:



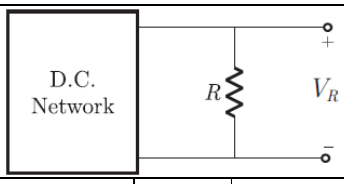
A	25 A	B	50 A
C	100 A	D	200 A

133. In the circuit given below, the value of *R* required for the transfer of maximum power to the load having a resistance of 3 Ω is:



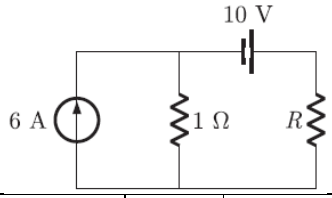
A	Zero	B	3 Ω
C	6 Ω	D	Infinity

134. For the circuit shown in figure $V_R = 20$ V when $R = 10$ Ω and $V_R = 30$ V when $R = 20$ Ω. For $R = 80$ Ω, V_R will read as:



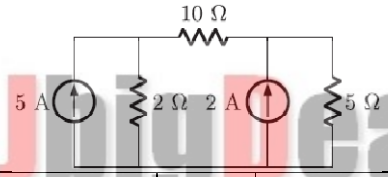
A	48 V	B	60 V
C	120 V	D	160 V

135. For the circuit shown in figure R is adjusted to have maximum power transferred to it. The maximum power transferred is:



A	16 W	B	32 W
C	64 W	D	100 W

136. In the circuit shown in figure, current through the 5 Ω resistor is:

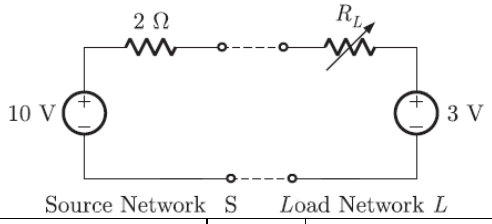


A	Zero	B	2 A
C	3 A	D	7 A

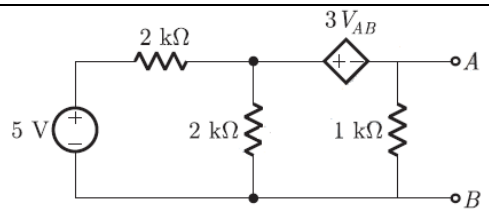
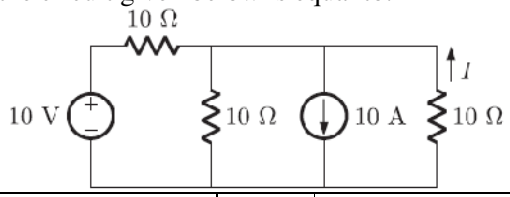
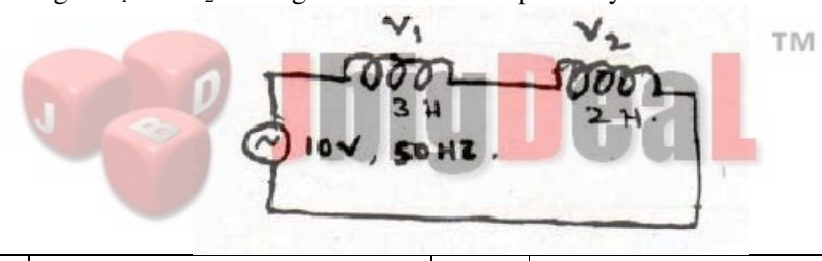
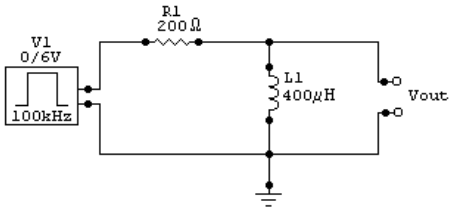
137. In full sunlight, a solar cell has a short circuit current of 75 mA and a current of 70 mA for a terminal voltage of 0.6 with a given load. The Thevenin resistance of the solar cell is:

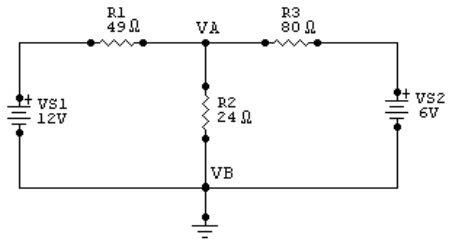
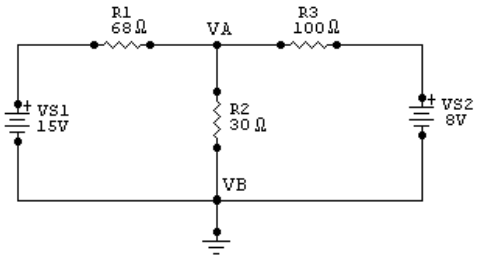
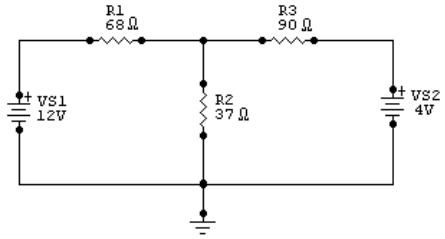
A	8 Ω	B	8.6 Ω
C	120 Ω	D	140 Ω

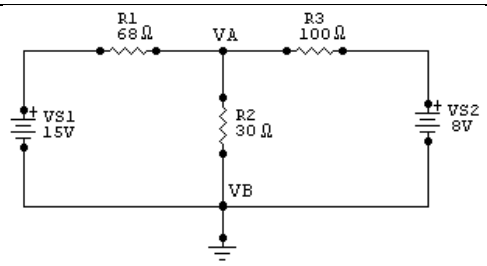
138. The source network S is connected to the load network L as shown by dashed lines. The power transferred from S to L would be maximum when RL is:



A	0 Ω	B	0.6 Ω
C	0.8 Ω	D	2 Ω

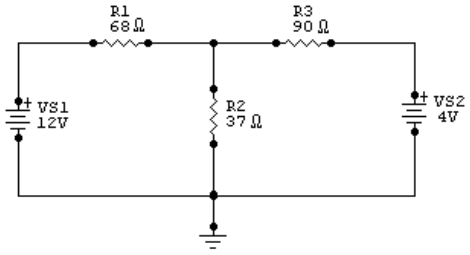
139.	 For the circuit given above, the Thevenin's voltage across the terminals *A* and *B* is			
	A	1.25 V	B	0.25 V
	C	1 V	D	0.5 V
140.	The current *I* shown in the circuit given below is equal to: 			
	A	3 A	B	3.67 A
	C	6 A	D	9 A
141.	The voltages V_1 and V_2 in the given circuit are respectively: 			
	A	6 V, 4 V	B	5 V each
	C	4 V, 6 V	D	None of these
142.	A two-port network is reciprocal if and only if:			
	A	$Z_{11} = Z_{22}$	B	$Y_{12} = Y_{21}$
	C	BC – AD = - 1	D	$h_{12} = h_{21}$
143.	Referring to the give circuit, the output will 			
	A	decay to zero at the end of the pulse	B	reach 6 V at the end of the pulse
	C	reach 3.78 V at the end of the pulse	D	reach 5.16 V at the end of the pulse

144.	Find the node voltage V_A. 			
	A	6 V	B	12 V
	C	4.25 V	D	3 V
145.	What is the current through R_2? 			
	A	3.19 A	B	319 mA
	C	1.73 A	D	173 mA
146.	In assigning the direction of branch currents,			
	A	the directions are critical	B	the directions are not critical
	C	they must point into a node	D	they must point out of a node
147.	Using the mesh current method, find the branch current, IR_1, in the figure below. 			
	A	125 mA	B	12.5 mA
	C	12.5 A	D	135 mA
148.	The branch current method uses			
	A	Kirchhoff's voltage and current laws	B	Thevenin's theorem and Ohm's law
	C	Kirchhoff's current law and Ohm's law	D	the superposition theorem and Thevenin's theorem
149.	Find the node voltage V_A.			



	A	518 mV	B	5.18 V
	C	9.56 V	D	956 mV

150. What is the voltage drop across R_2?



	A	3.5 V	B	4.18 V
	C	1.5 V	D	145 mV

151. A single-phase load is supplied by a single-phase voltage source. If the current flowing from the load to the source is $10 \angle -150^0$ A and if the voltage at the load terminals is $100 \angle 60^0$ V, then the

	A	load absorbs real power and delivers reactive power	B	load absorbs real power and absorbs reactive power
	C	load delivers real power and delivers reactive power.	D	load delivers real power and absorbs reactive power.

152. Two systems with impulse responses h1(t) and h2(t) are connected in cascade. Then the overall impulse response of the cascaded system is given by

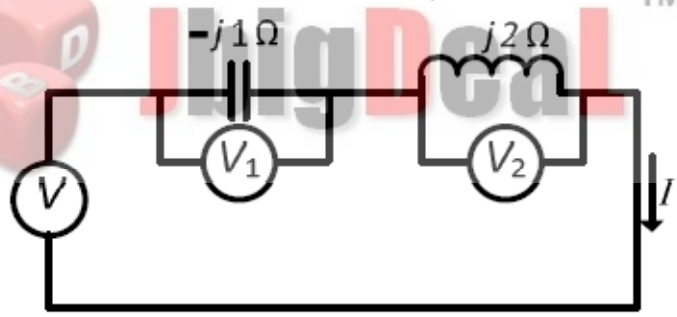
	A	Product of h1(t) and h2(t)	B	Sum of h1(t) and h2(t)
	C	Convolution of h1(t) and h2(t)	D	Subtraction of h1(t) and h2(t)

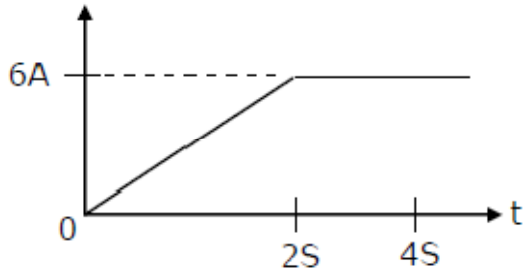
153. A bulb in a staircase has two switches, one switch being at the ground floor and the other one at the first floor. The bulb can be turned ON and also can be turned OFF by any one of the switches irrespective of the state of the other switch. The logic of switching of the bulb resembles

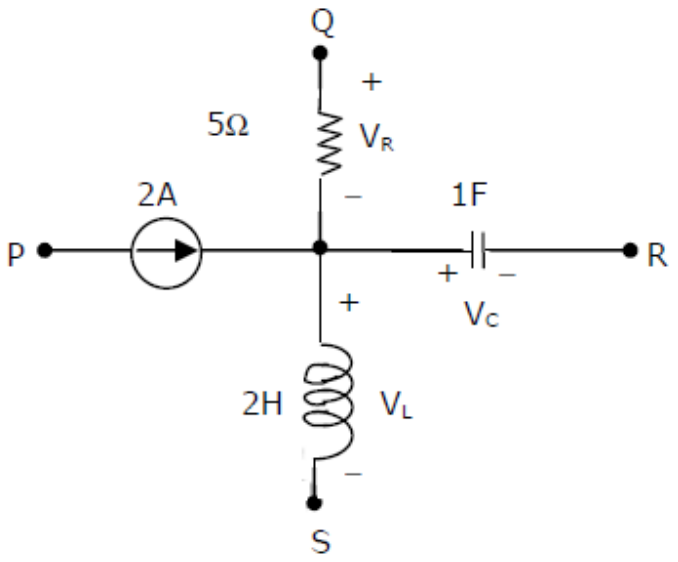
	A	an AND gate	B	an OR gate
	C	an XOR gate	D	a NAND gate

154. For a periodic signal v(t) = 30sin100t +10cos300t +6sin(500t + π/4) , the fundamental frequency in rad/s is

	A	100	B	300
	C	500	D	1500

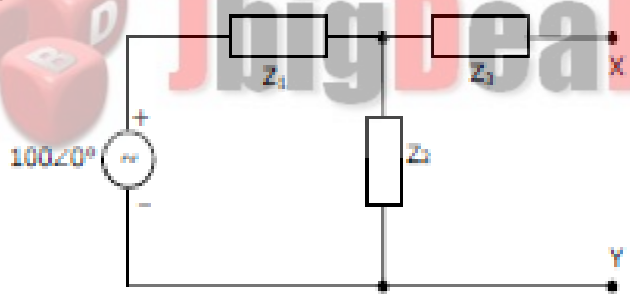
155.	A band-limited signal with a maximum frequency of 5 kHz is to be sampled. According to the sampling theorem, the sampling frequency in kHz which is not valid is			
	A	5	B	12
	C	15	D	20
156.	Consider a delta connection of resistors and its equivalent star connection as shown below. If all elements of the delta connection are scaled by a factor k, k > 0, the elements of the corresponding star equivalent will be scaled by a factor of 			
	A	k^2	B	k
	C	$\frac{1}{k}$	D	$\sqrt{k}$
157.	Three moving iron type voltmeters are connected as shown below. Voltmeter readings are V, V_1 and V_2 as indicated. The correct relation among the voltmeter readings is 			
	A	$V=\frac{V_1}{\sqrt{2}}+\frac{V_2}{\sqrt{2}}$	B	$V=V_1+V_2$
	C	$V=V_1V_2$	D	$V=V_2-V_1$

158.	Figure shows the waveform of the current passing through an inductor of resistance 1 Ω and inductance 2 H. The energy absorbed by the inductor in the first four seconds is 			
	A	144 J	B	98 J
	C	132 J	D	168
159.	A segment of a circuit is shown in Fig. VR = 5V, VC = 4 sin 2t. The voltage VL is given by			



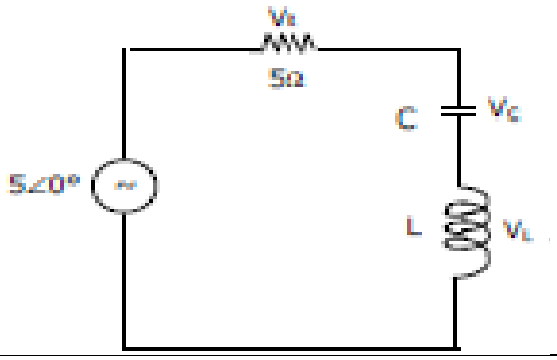
A	3 – 8 cos 2t	B	32 sin 2t
C	16 sin 2t	D	16 cos 2t

160. In the figure, $z_1 = 10\angle{-60^o}$,$z_2 = 10\angle{60^o}$, $z_3 = 50\angle{-53.13^o}$. Thevenn impedance seen from X-Y is



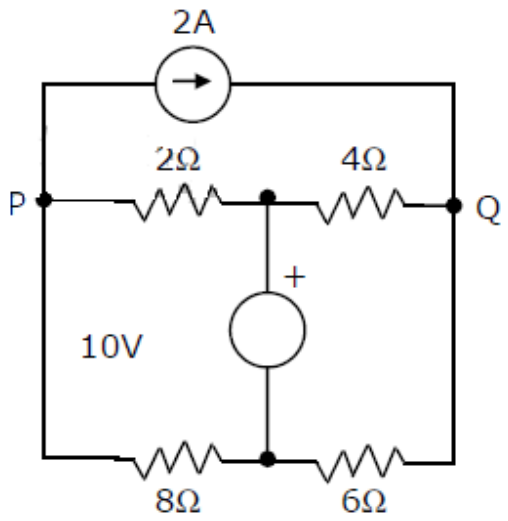
A	56.66∠45°	B	60∠30°
C	70∠30°	D	34.4∠65°

161. In the circuit of figure the magnitudes of V_L and V_C are twice that of V_R. The inductance of the coil is



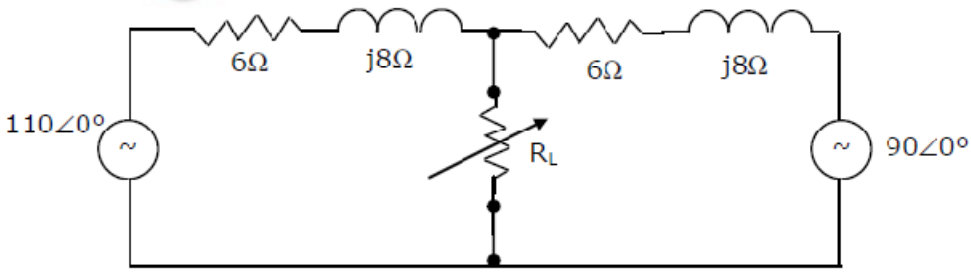
	A	2.14 mH	B	5.30 H
	C	31.8 mH	D	1.32 H

162. In Figure the potential difference between points P and Q is



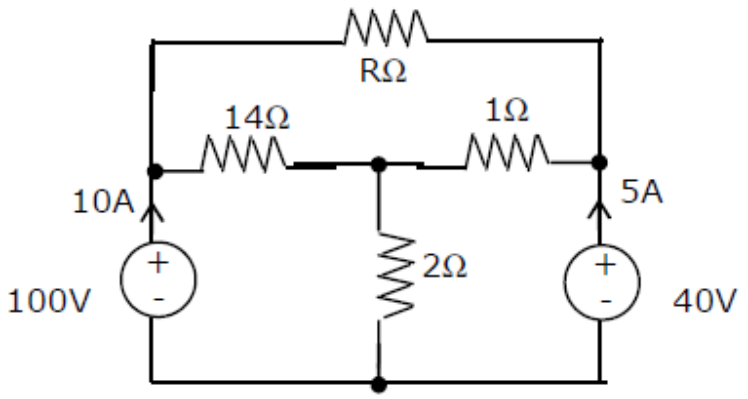
	A	12 V	B	10 V
	C	-6V	D	8V

163. Two ac sources feed a common variable resistive load as shown in figure. Under the maximum power transfer condition, the power absorbed by the load resistance R_L is



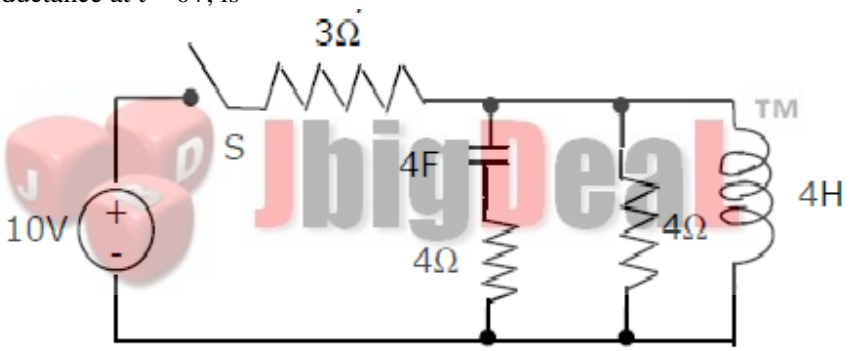
	A	2200 W	B	1250 W
	C	1000 W	D	625W

164. In Figure the value of R is



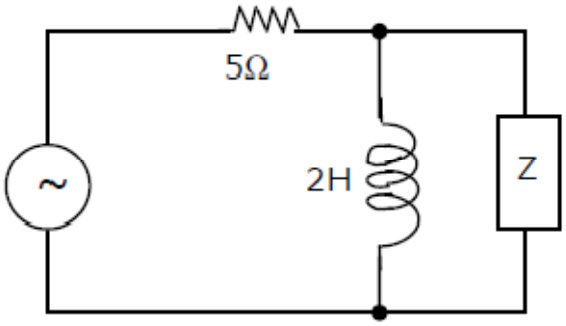
A	10Ω	B	18Ω
C	24Ω	D	12Ω

165. In the circuit shown in Figure the switch S is closed at time t = 0. the voltage across the inductance at t = 0+, is



A	2V	B	4V
C	-6V	D	8V

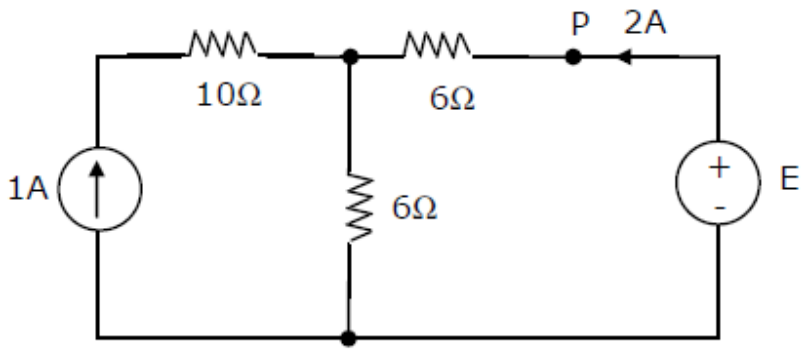
166. The value of Z in Figure which is most appropriate to cause parallel resonance at 500 Hz, is



A	125.00 mH	B	304.20 μF

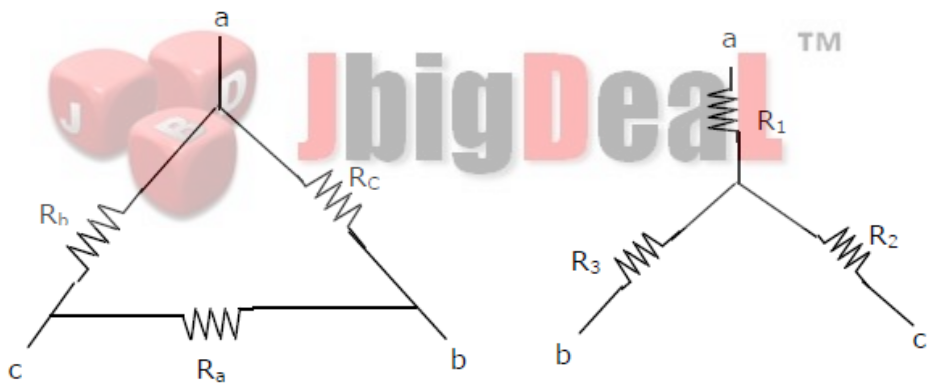
	C	2.0 µF	D	0.05 µF

167. In figure, the value of the voltage source is



A	12 V	B	24 V
C	30 V	D	44 V

168. In figure, Ra, Rb and Rc are 20Ω, 10Ω and 10 Ω respectively. The resistance R1, R2 and R3 in Ω of an equivalent star-connection are

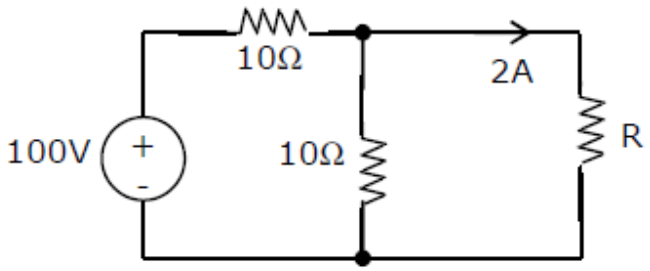


A	2.5, 5, 5	B	5, 2.5, 5
C	5 , 5, 2.5	D	2.5, 5 , 2.5

169. The three elements having admittance values in Siemens are $Y_R = 0.5 + j0.0$, $Y_L = 0 - j1.5$, $Y_C = 0 + j0.3$ respectively. They are connected in parallel to current source having magnitude I. The value of I as a phasor when the voltage E across the elements is $10.0\angle 0^o$ V is

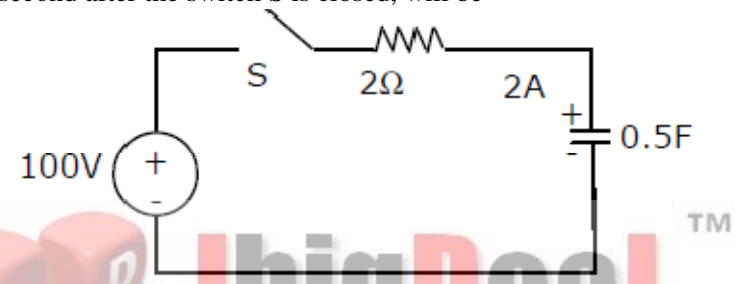
A	1.5 + j0.5	B	5 – j18
C	0.5+j1.8	D	5 – j12

170. In figure, the value of resistance R in Ω is



A	10	B	20
C	30	D	40

171. In figure, the capacitor initially has a charge of 10 Coulomb. The current in the circuit one second after the switch S is closed, will be

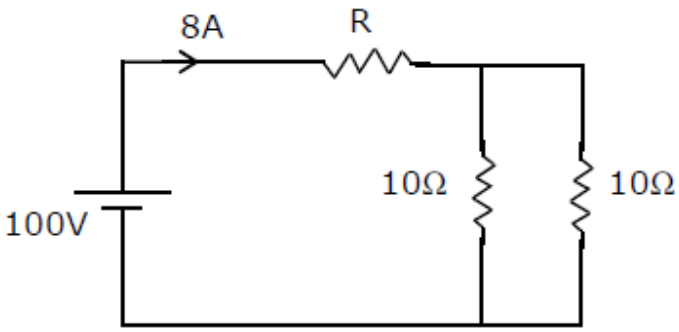


A	14.7 A	B	18.5 A
C	40.0 A	D	50.0 A

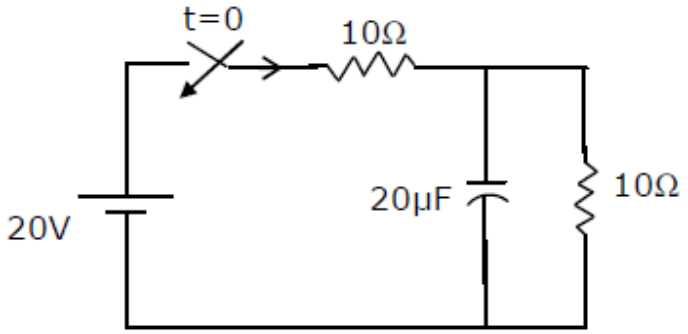
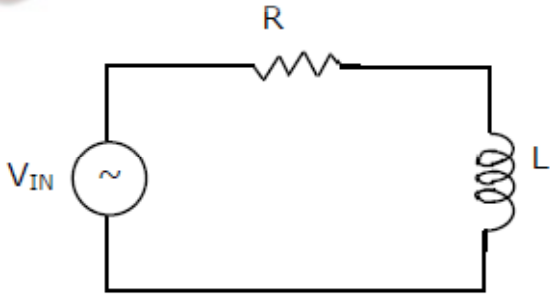
172. The rms value of the resultant current in a wire which carries a d.c. current of 10 A and a sinusoidal alternating current of peak value 20 A is

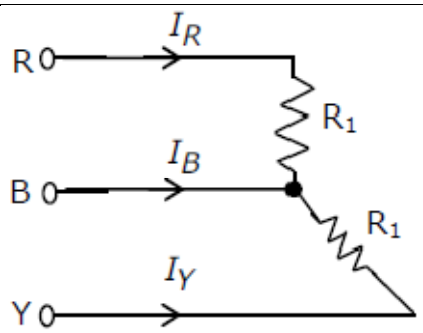
A	14.1 A	B	17.32 A
C	22.4 A	D	30.0 A

173. In figure the value of R is



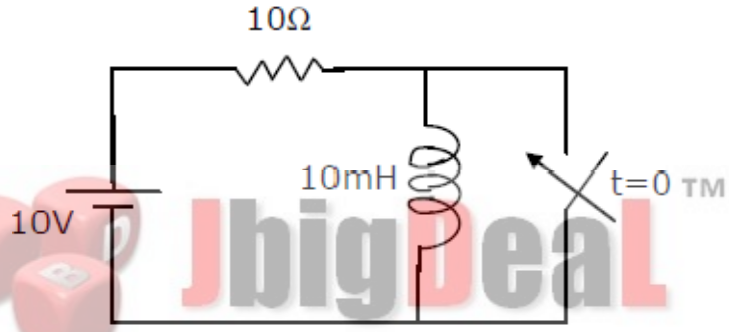
A	2.5Ω	B	5.0 Ω
C	7.5 Ω	D	10.0 Ω

174.	The RMS value of the voltage u (t) = 3 + 4cos (3t) is:			
	A	$\sqrt{17}\,V$	B	5V
	C	7V	D	$(3 + 2\sqrt{2})$V
175.	In Figure the initial capacitor voltage is zero. The switch is closed at t = 0. The final steady-state voltage across the capacitor is: 			
	A	20V	B	10V
	C	5V	D	0V
176.	The RL circuit of figure, is fed from a constant magnitude, variable frequency sinusoidal voltage source v_{IN}. At 100 Hz, the R and L elements each have a voltage drop u_{RMS}. If the frequency of the source is changed to 50 Hz, the new voltage drop across R is: 			
	A	$\sqrt{\frac{5}{8}u_{RMS}}$	B	$\sqrt{\frac{2}{3}u_{RMS}}$
	C	$\sqrt{\frac{8}{5}u_{RMS}}$	D	$\sqrt{\frac{3}{2}u_{RMS}}$
177.	For the three-phase circuit shown in figure the ratio of the current I_R:I_Y:I_B is given by			



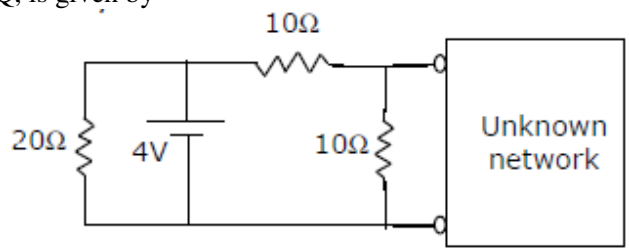
A	1:1:$\sqrt{3}$	B	1:1:2
C	1:1:0	D	1:1:$\sqrt{\frac{3}{2}}$

178. The circuit shown in figure is in steady state, when the switch is closed at t = 0. Assuming that the inductance is ideal, the current through the inductor at t = 0+ equals



A	0A	B	0.5A
C	1A	D	2A

179. In Figure the Thevenin's equivalent pair (voltage, impedance), as seen at the terminals P-Q, is given by

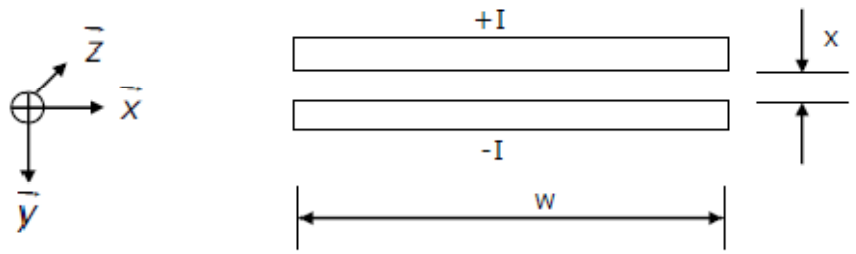


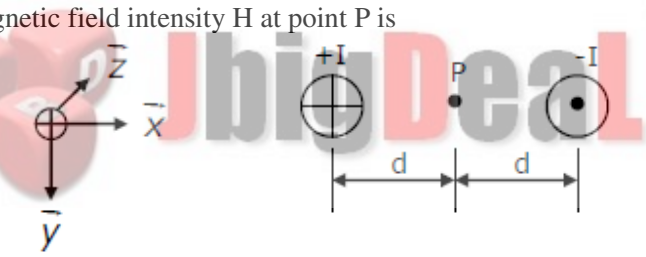
A	(2V, 5W)	B	(2V, 7.5W)
C	(4V, 5W)	D	(4V, 7.5W)

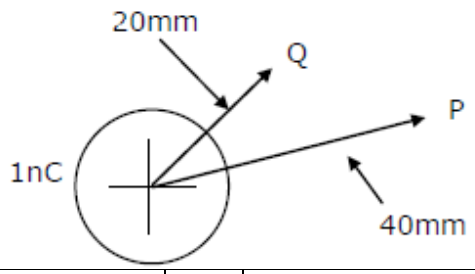
180. Maxwell's equations involve_____.

A	Charge density	B	Current density

	C	Magnetic intensity	D	All of these
181.	Electric dipole is a pair of _____ and _____ point charges.			
	A	Equal and same	B	Unequal and same
	C	Equal and opposite	D	Unequal and opposite
182.	ε_0 is _____ F/m.			
	A	8.854×10^{-12}	B	6.654×10^{-12}
	C	$8.854\ 10^{-10}$	D	6.654×10^{-10}
183.	Magnitude of dipole moment | pl is given as _____.			
	A	qd	B	q/d
	C	d/q	D	None of these
184.	Electric flux density is _____medium.			
	A	Depends on	B	Independent of
	C	Both (a) and (b)	D	None of these
185.	If work done W_{mn} is zero, then V_N and V_M are related as _____.			
	A	$V_N + V_M = 0$	B	$V_N - V_M = 0$
	C	$2V_N + V_M = 0$	D	$V_N + 2V_M = 0$
186.	Charge distribution symmetry can be of _____ type.			
	A	Spherical	B	Cylindrical
	C	Plana	D	All of these
187.	Curl of electrostatic field is _____.			
	A	∞	B	1
	C	0	D	None of these
188.	Potential energy _____ if a test charge is moved from a lower potential point to a higher potential point.			
	A	Remains the samE	B	Increases
	C	Decreases	D	Becomes zero

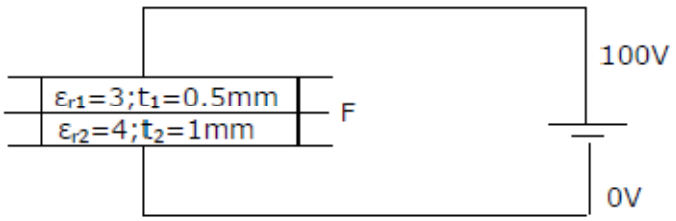
189.	In the case of a linear material medium, _____ equation can be derived easily from Gauss' law.			
	A	Poisson	B	Laplace
	C	Both (a) and (b)	D	None of these
190.	According to the method of images, the tangential component of electric field to conductor surface is _____.			
	A	Unity	B	Zero
	C	Infinity	D	None of these
191.	In a Cartesian coordinate system, axes x, y and z are at _____ to each other.			
	A	45°	B	90°
	C	120°	D	180°
192.	Cartesian coordinates are represented in terms of _____.			
	A	(r, Φ, z)	B	(r, θ, Φ)
	C	(x, y, z)	D	all of these
193.	Cylindrical coordinates are represented in terms of _____.			
	A	(r, Φ, z)	B	(r, θ, Φ)
	C	(x, y, z)	D	all of these
194.	Two infinite strips of width w m in x direction as shown in Figure, are carrying forward and return currents of +I and –I in the z direction. The strips are separated by a distance of x m. The inductance per unit length of the configuration is measured to be L H/m. If the distance of separation between the strips is now reduced to x/2 m the inductance per unit length of the configuration is 			
	A	2L H/m	B	L/4 H/m
	C	L/2 H/m	D	4L H/m
195.	Spherical coordinates are represented in terms of _____.			
	A	(r, Φ, z)	B	(r, θ, Φ)
	C	(x, y, z)	D	all of these

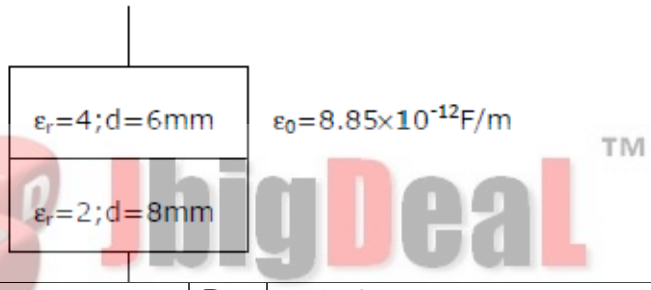
196.	Cylindrical coordinate 'z' is related to the Cartesian coordinate as _____.			
	A	$\tan^{-1}(y/x)$	B	z
	C	xy/z	D	cot z
197.	In a Spherical coordinate system, Φ is _____.			
	A	angle of elevation	B	azimuthal angle
	C	distant from the origin to the point	D	all of these
198.	Spherical coordinate system is a _____.			
	A	right-handed system.	B	left-handed system
	C	both (a)and (b)	D	none of these
199.	In a Spherical coordinate system, Φ is given as _____.			
	A	y/x	B	x/y
	C	$\tan^{-1}(y/x)$	D	$\tan^{-1}(x/y)$
200.	Two conductors are carrying forward and return current of +I and –I as shown in figure. The magnetic field intensity H at point P is 			
	A	$\frac{I}{\pi d}\bar{y}$	B	$\frac{I}{\pi d}\bar{x}$
	C	$\frac{I}{2\pi d}\bar{y}$	D	$\frac{I}{\pi d}\bar{x}$
201.	In terms of Spherical coordinate system variables, y of Cartesian coordinate system is given as _____.			
	A	r sin θ cos Φ	B	r sin θ sin Φ
	C	r cos θ sin Φ	D	r cos θ cos Φ
202.	A point charge of +1 nC is placed in a space with a permittivity of 8.85 × 10-12 F/m as shown in figure. The potential difference V_{PQ} between two points P and Q at distances of 40 mm and 20 mm respectively from the point charge is			



	A	0.22 kV	B	-225 V
	C	-2.24 kV	D	15 V
203.	In the Cylindrical coordinate system, z ranges between _____.			
	A	0 and 1	B	$-\infty$ and 0
	C	0 and $-\infty$	D	$-\infty$ and ∞
204.	In the Cylindrical coordinate system, Φ ranges from _____.			
	A	0 to less than π	B	0 to less than 2π
	C	0 to less than 3π	D	0 to less than 4π
205.	A scalar quantity has _____.			
	A	Magnitude	B	direction
	C	both (a) and (b)	D	none of these
206.	Which of the following is/are scalar quantity(s)?			
	A	Distance	B	density
	C	Temperature	D	all of these
207.	Which of the following is not a scalar quantity?			
	A	Entropy	B	displacement
	C	Volume	D	mass
208.	A vector quantity has _____.			
	A	Magnitude	B	direction
	C	both (a) and (b)	D	none of these
209.	Which of the following is/are vector quantity(s)?			
	A	Force	B	electric field intensity
	C	Acceleration	D	all of these
210.	A unit vector has its magnitude as _____.			

	A	0	B	1
	C	∞	D	none of these
211.	A unit vector has _____ direction to that of the main vector.			
	A	Same	B	opposite
	C	normal upwards	D	normal downwards
212.	If two vectors are orthogonal, then their scalar product is _____.			
	A	1	B	0
	C	∞	D	100
213.	_____ Product is governed by the Right-Hand Screw Rule.			
	A	Vector	B	scalar
	C	simple mathematical	D	none of these
214.	The vector product obeys the _____ law.			
	A	Commutative	B	Associative
	C	Distributive	D	Parallelogram
215.	The cross product of the same vector to itself is _____.			
	A	0	B	1
	C	∞	D	100
216.	_____ product of two unit vectors is the third unit vector.			
	A	Vector	B	scalar
	C	both (a) and (b)	D	none of these
217.	'r' in Cylindrical coordinates corresponding to Cartesian coordinate (3, 4, 5) is _____.			
	A	12	B	7
	C	10	D	5
218.	Maxwell's equations shelter on _____ law(s).			
	A	Faraday's	B	Gauss's
	C	Ampere's	D	All of these
219.	Conduction current through a wire is _____ displacement current in capacitor.			
	A	Same as	B	Different from

	C	Twice of	D	None of these
220.	In empty space, conduction current is _____.			
	A	Infinity	B	Unity
	C	Zero	D	None of those
221.	emf is closed _____ integral of non-conservational electric field that is generated by battery.			
	A	Line	B	Surface
	C	Volume	D	None of these
222.	Maxwell's equations in _____ form give information at points of discontinuity in electromagnetic fields.			
	A	Differential	B	Integral
	C	Algebraic	D	None of these
223.	Another boundary condition using Maxwell's equations is given as _____.			
	A	$H_{tan\ '1'} + H_{tan\ '2'} = 0$	B	$H_{tan\ '1'} - H_{tan\ '2'} = 0$
	C	$H_{tan\ '1'} + H_{tan\ '2'} = J_s$	D	$H_{tan\ '1'} - H_{tan\ '2'} = J_s$
224.	At the point of discontinuity, _____ component of magnetic flux density is continuous.			
	A	Tangential	B	Normal
	C	None of these	D	Cannot say
225.	A parallel plate capacitor has an electrode area of 100 mm^2, with a spacing of 0.1 mm between the electrodes. The dielectric between the plates is air with a permittivity of 8.85×10^{-12} F/m. The charge on the capacitor is 100 V. The stored energy in the capacitor is			
	A	8.85 pJ	B	440 pJ
	C	22.1 nJ	D	44.3 pJ
226.	A composite parallel plate capacitor is made up of two different dielectric materials with different thickness (t1 and t2) as shown in figure. The two different dielectric materials are separated by a conducting foil F. The voltage of the conducting foil is 			

	A	52 V	B	60 V
	C	67 V	D	33 V
227.	Displacement current density _____ current passing through a capacitor.			
	A	Represents	B	Does not represent
	C	Is the same as	D	None of these
228.	Line integral of an electric field around a closed path is _____.			
	A	Infinity	B	Unity
	C	Zero	D	None of these
229.	A parallel plate capacitor is shown in figure. It is made of two square metal plates of 400 mm side. The 14 mm space between the plates is filled with two layers of dielectrics of $\varepsilon_r = 4$, 6 mm thick and $\varepsilon_r = 2$, 8 mm thick. Neglecting fringing of fields at the edges the capacitance is 			
	A	1298 pF	B	944 Pf
	C	354 pF	D	257 pF
230.	The inductance of a long solenoid of length 1000 mm wound uniformly with 3000 turns on a cylindrical paper tube of 60mm diameter is			
	A	3.2 μH	B	3.2 mH
	C	32.0 mH	D	3.2 H
231.	If $\bar{E}$ is the electric field intensity, $\nabla.\left(\nabla \times \bar{E}\right)$ is equal to			
	A	$\bar{E}$	B	$\lvert \bar{E} \rvert$
	C	Null vector	D	zero
232.	Wave speed in terms of frequency f and wavelength λ is expressed as _____.			
	A	f/λ	B	λ/f
	C	λ f	D	(λ + f)
233.	For a lossy dielectric medium, _____.			
	A	$\sigma = 0$	B	$\sigma \neq 0$

	C	None of these	D	Cannot say
234.	Wave attenuation is given as _____.			
	A	$e^{+\beta x}$	B	$e^{-\beta x}$
	C	$e^{+\alpha x}$	D	$e^{-\alpha x}$
235.	In the case of a perfect dielectric medium, phase constant _____ as conductivity increases.			
	A	Increases	B	Decreases
	C	Remains unchanged	D	None of these
236.	Phase velocity is given as _____.			
	A	ωβ	B	βω
	C	β/ω	D	None of these
237.	In good conductors, rate of attenuation is _____.			
	A	Small	B	Large
	C	Infinity	D	Zero
238.	Which of the following statements holds for the divergence of electric and magnetic flux densities?			
	A	Both are zero	B	These are zero for static densities but non zero for time varying densities
	C	It is zero for the electric flux density	D	It is zero for the magnetic flux density
239.	Reflection coefficient Γ is _____.			
	A	≥100	B	= 10
	C	≤ 1	D	None of these
240.	Divergence of the vector field, $V(x,y,z) = -(x\cos xy + y)i + (y\cos xy)j + (\sin z^2 + x^2 + y^2)k$ is			
	A	$2z\cos z^2$	B	$\sin xy + 2z\cos z^2$
	C	$x\sin xy - \cos z$	D	None of these
241.	Standing wave consists of two travelling waves of _____ amplitudes and _____ is direction.			
	A	Unequal, same	B	Unequal, opposite
	C	Equal, same	D	Equal, opposite
242.	A solid sphere made of insulating material has a radius R and has a total charge Q distributed uniformely in its volume. What is the magnitude of the electric field intensity, E, at a distance r (0<r<R) inside the sphere?			

	A	$\frac{1}{4\pi\varepsilon_0}\frac{Qr}{R^3}$	B	$\frac{3}{4\pi\varepsilon_0}\frac{Qr}{R^3}$
	C	$\frac{1}{4\pi\varepsilon_0}\frac{Q}{r^2}$	D	$\frac{1}{4\pi\varepsilon_0}\frac{QR}{r^3}$
243.	An extra high voltage transmission line of length 300 km can be approximated by lossless line having propagation constant β=0.00127 radians per km. Then the percentage ratio of line length to wavelength will be given by			
	A	24.24 %	B	12.12 %
	C	19.05 %	D	6.06 %
244.	A medium behaves like dielectric when			
	A	The displacement current is much greater than the conduction current	B	The displacement current is just equal to the conduction current
	C	The displacement current is just less than the conduction current	D	The displacement current as well as conduction current both are negligibly small
245.	Which of the following represents the continuity equation for discrete components?			
	A	$\nabla.J = 0$	B	$\nabla XH = J$
	C	$\nabla.J = H$	D	$\nabla.H = J$
246.	Which of the following equation represents the relation between the magnetizing volume current density J_m and the magnetization polarization M?			
	A	$J_m=\nabla^2.M$	B	$J_m=\nabla.(\nabla XM)$
	C	$J_m=\nabla.M$	D	$J_m\nabla.M$
247.	The vector product of electric intensities E and magnetic field intensities H at any point is a measure of rate of energy flow per unit area at that point. The above statement is known as			
	A	Principle of duality	B	Poynting theorem
	C	Helmholtz theorem	D	Gauss's theorem
248.	Electrostatic field is _____ a perfect conductor.			
	A	same inside	B	infinite inside
	C	zero inside	D	none of these
249.	Potential is _____ a perfect conductor.			
	A	same inside	B	infinite inside
	C	zero inside	D	none of these
250.	As per Gauss' Law, charge density inside a perfect conductor is zero if E is			

	_____.			
	A	positive	B	Negative
	C	unity	D	Zero
251.	Conductivity of dielectric is _____.			
	A	low	B	High
	C	both (a) and (b)	D	cannot say
252.	Which of the following is not a non-polar dielectric?			
	A	water	B	Oxygen
	C	CO_2	D	Alcohol
253.	The direction of electric dipole moment is _____ applied electric field.			
	A	orthogonal	B	Contrary
	C	same	D	None of these
254.	Electric polarization of a material is electric dipole moment per unit _____.			
	A	length	B	Area
	C	volume	D	None of these
255.	Capacitor stores energy in _____ field.			
	A	electric	B	Magnetic
	C	gravity	D	None of these
256.	Inductor stores energy in _____ field.			
	A	electric	B	Magnetic
	C	gravity	D	None of these
257.	Which of the following is not an inductor?			
	A	toroid	B	Transmission line
	C	Solenoid	D	None of these
258.	Magnetic field at any point inside a long solenoid is _____.			
	A	zero	B	Infinity
	C	constant	D	None of these
259.	The ratio of the velocity of a wave in free-space to that in conducting medium is known as			

	A	Space factor	B	Attenuation
	C	Poynting vector	D	Refractive index
260.	Which of the following is not Maxwell's equation?			
	A	$\nabla X\bar{H} = \bar{J} + \bar{D}$	B	$\nabla.\bar{D} = \rho$
	C	$\nabla.B = 0$	D	$\nabla.\bar{E} = -\bar{B}$
261.	Which of the following is not Maxwell's equation?			
	A	B=μH	B	$\bar{E} = \frac{\bar{D}}{\varepsilon}$
	C	$\bar{E} = \frac{\bar{J}}{\sigma}$	D	$\bar{E} = \varepsilon\bar{D}$
262.	Poynting vector signifies			
	A	Power density vectors producing electro-magnetic field	B	Current density vectors producing electro-magnetic field
	C	Power density vectors producing electro-static field	D	Current density vectors producing electro-static field.
263.	Poynting vectors has the units of :			
	A	Watts	B	Watts/meter
	C	Watts/meter^2	D	Newtons
264.	Line integral involves _____ product.			
	A	scalar	B	vector
	C	both (a) an (b)	D	none of these
265.	Del operator is _____.			
	A	same as the gradient operator	B	vector differential operator
	C	both (a) an (b)	D	none of these
266.	Gradient represents the _____ of maximum space rate of increase of a scalar field.			
	A	magnitude	B	direction
	C	both (a) an (b)	D	none of these
267.	Divergence of a vector at a point in a vector field is _____ quantity.			
	A	vector	B	scalar
	C	both (a) an (b)	D	none of these
268.	Divergence of vector field is net outward flux of a vector per unit _____.			

	A	surface area	B	Volume
	C	length	D	none of these
269.	Divergence at a point is positive if field lines are _____.			
	A	diverging	B	converging
	C	both (a) an (b)	D	none of these
270.	If the rate at which field lines enter into a small volume and also leave, then divergence is _____.			
	A	∞	B	1
	C	0	D	-1
271.	Divergence Theorem is applicable for a _____ that is bounded by a _____.			
	A	volume, surface	B	surface, volume
	C	surface, line	D	line, surface
272.	Divergence Theorem relates _____ integral to _____ integral.			
	A	surface, volume	B	line, surface
	C	volume, line	D	all of these
273.	Laplacian operator _____.			
	A	is a scalar function	B	is a vector function
	C	can be a scalar or vector function	D	none of these
274.	Curl measures _____.			
	A	rate of change of vector	B	circular rotation
	C	both (a) an (b)	D	none of these
275.	Stoke's Theorem relates, _____ integral to a _____ integral.			
	A	volume, surface	B	volume, line
	C	line, surface	D	all of these
276.	Laplacian of a scalar is _____.			
	A	scalar	B	vector
	C	both (a) an (b)	D	none of these
277.	Laplacian of a vector is _____ of gradient of its divergence and its curl of curl.			

	A	addition	B	difference
	C	multiplication	D	division
278.	A scalar field is harmonic in a given region, if its Laplacian is _____.			
	A	∞	B	-1
	C	1	D	0
279.	An electromagnetic field exists only when there is			
	A	an increasing current	B	decreasing current
	C	voltage	D	current
280.	The two vectors [1,1,1] & [1,a,a^2] , where a = [-1/2+j√3/2] , are			
	A	Orthonormal	B	Orthogonal
	C	Parallel	D	Collinear
281.	Given a vector field, $F = y^2 xa_x - yza_y = x^2a_z$, the line integral $\int F.dl$ evaluated along a segment on the x-axis from x=1 to x=2 is			
	A	-2.33	B	0
	C	2.33	D	7
282.	The curl of the gradient of the scalar field defined by $V = 2x^2y + 3y^2z + 4z^2x$ is			
	A	$4xya_x + 6yza_y + 8zxa_z$	B	$4a_x + 6a_y + 8a_z$
	C	$(4xy+4z^2)\ a_x + (2x^2 + 6yz)\ a_y + (3y^2 + 8zx)\ a_z$	D	0
283.	A dielectric slab with 500mm x 500mm cross-section is 0.4m long. The slab is subjected to a uniform electric field of $E = 6a_x + 8a_y$ kV/mm. The relative permittivity of the dielectric material is equal to 2. The value of constant ε_0 is $8.85*10^{-12}$ F /m. The energy stored in the dielectric in Joules is			
	A	$8.85*10^{-11}$	B	$8.85*10^{-5}$
	C	88.5	D	885
284.	Transmission lines facilitate _____propagation of energy.			
	A	Guided	B	Unguided
	C	None of these	D	Cannot say
285.	Poynting vectors gives the			
	A	Rate of energy flow	B	Intensity of electric field

	C	Intensity of magnetic field	D	Direction of polarization

1	The transfer function of a zero order hold system is			
	A	$(1/s)(1+e^{-st})$	B	$(1/s)(1-e^{-st})$
	C	$1-(1/s)e^{-st}$	D	$1+(1/s)e^{-st}$
2	Signal flow graph is used to find			
	A	Stability of the system.	B	Transfer function of system.
	C	Poles of the system.	D	Controllability of the system.
3	A control system whose step response is $-0.5(1+e^{-2t})$ is cascaded to another block whose impulse response is e^{-t}. The transfer function of the cascaded combination is			
	A	$1/((s+1)(s+2))$	B	$1/s(s+1)$
	C	$1/s(s+2)$	D	$0.5/((s+1)(s+2))$
4	Phase lag compensation will			
	A	Improve relative stability.	B	Increase the bandwidth.
	C	Increase the speed of response.	D	Increase the overshoot.
5	The closed loop transfer function of a control system is given by $C(s)/R(s)=1/(1+s)$. For the input $r(t)=\sin t$, the steady state value of $c(t)$ is equal to			
	A	$(1/\sqrt{2})\cos t$	B	1
	C	$(1/\sqrt{2})\sin t$	D	$(1/\sqrt{2})\sin(t-\pi/4)$
6	The open loop transfer function of a control system is given by $K(s+10)/(s(s+2)(s+a))$. The smallest possible value of 'a' for which this system is stable in the closed loop for all positive values of K is			
	A	0	B	8
	C	10	D	12
7	The characteristic equation of a feedback system is $s^3 + Ks^2 + 5s + 10 = 0$. For the system to be critically stable, the value of 'K' should be			
	A	1	B	2
	C	3	D	4
8	A unity control feedback system has an open loop transfer function of $G(s)=K/s(s+1)$. The steady state error of the system due to a unit step input is			
	A	Zero.	B	K
	C	1/K	D	∞
9	The characteristic equation of a closed loop system is given by $s^4+6s^3+11s^2+6s+K=0$. Stable closed loop behavior can be ensured when the gain K is such that			
	A	$0< K <10$	B	$K >10$
	C	$-\infty \leq K > \infty$	D	$0< K\leq 20$
10	A linear discrete time system has the characteristic equation, $z^2 - 0.81z = 0$. The system			
	A	Is stable	B	Is marginally stable.
	C	Stability cannot be assessed from the given equation.	D	Is unstable.
11	The response of a system to an input $r(t)$ is given by the following differential equation. $d^2c(t)/dt^2 + 3\,dc(t)/dt + 5\,c(t) = 5r(t)$. The transfer function of the system is given by			
	A	$G(s)=5/(s^2+3s+5)$	B	$G(s)=1/(s^2+3s+5)$
	C	$G(s)=3s/(s^2+3s+5)$	D	$G(s)=(s+3)/(s^2+3s+5)$
12	The values of 's' which make the transfer function infinite after substituting in the denominator of the transfer function are called the			
	A	Zeros of the transfer function.	B	Poles of the transfer function.
	C	Factors of the transfer function.	D	Holes of the transfer function.

13	The maximum phase shift that can be obtained by using a lead compensator with transfer function $G_C(s)=4(1 + 0.15s)/(1+0.05s)$ is equal to			
	A	15°	B	30°
	C	45°	D	60°
14	Consider the unit step response of a unity feedback control system whose open loop transfer function is $G(s)=1/s(s+1)$. The maximum overshoot is equal to			
	A	0.143	B	0.153
	C	0.163	D	0.194
15	For making an unstable system stable,			
	A	Gain of the system should be increased.	B	Gain of the system should be decreased.
	C	The number of zero to loop transfer functions should be increased.	D	The number of poles to loop transfer functions should be increased.
16	Consider a feedback control system with a loop transfer function of $G(s)H(s)= K(1+0.5s)/(s(1+s)(1+2s))$. The type of closed loop system is			
	A	Zero.	B	One
	C	Two	D	Three
17	For the transfer function $G(s)H(s)= 1/(s(s+1)(s+0.5))$, the phase cross –over frequency is			
	A	0.5 rad/sec	B	0.707 rad/sec
	C	1.732 rad/sec	D	2 rad/sec
18	The Nyquist plot of a loop transfer function $G(j\omega)H((j\omega)$ of a system encloses the point (-1,j0). The gain margin of the system is			
	A	Less than zero.	B	Zero.
	C	Greater than zero.	D	Infinity.
19	If the characteristic equation of a closed loop system is $s^2 + 2s + 2 =0$, then the system is			
	A	Overdamped.	B	Marginally damped.
	C	Underdamped.	D	Critically damped.
20	The amount of additional phase lag which can be introduced into the system till it reaches the verge of instability is called			
	A	Gain cross over.	B	Phase Margin.
	C	Phase cross over.	D	Gain Margin.
21	In a linear system, an input of $5\sin\omega t$ produces an output of $10\cos\omega t$. The output corresponding to an input of $10\cos\omega t$ will be equal to			
	A	$5\sin\omega t$	B	$-5\sin\omega t$
	C	$20\sin\omega t$	D	$-20\sin\omega t$
22	As compared to a closed loop system, an open loop system is			
	A	More stable and more accurate.	B	Less stable but more accurate.
	C	Less stable and less accurate.	D	More stable but less accurate.
23	Consider a system with a transfer function of $G(s)=(s + 6)/(Ks^2 + s + 6)$. Its damping ratio will be 0.5 when the value of K is			
	A	2/6	B	3
	C	1/6	D	6
24	The number of roots of the equation $2s^4+s^3 +3s^2 ++5s +7=0$, which lie to the right half of the 's' plane is			
	A	Zero	B	Three
	C	One	D	Two
25	The transfer function of a system is $G(s)=10(1+0.2s)/(2+0.5s)$. The phase shift at $\omega=0$ and $\omega= -\infty$ will be			

	A	90° and 0°.	B	-180° and 180°.
	C	-90° and 70°.	D	None of these
26	The gain margin of the given transfer function G(s)= 0.75/((s+1)(s+2)) will be			
	A	4 dB	B	8 dB
	C	12 dB	D	16 dB
27	The first two rows of Routh's tabulation of a fourth order system are s^4 1 10 5 s^3 2 20 The number of roots of the system lying to the right half of the s-plane is			
	A	0	B	2
	C	3	D	4
28	The gain cross-over frequency is defined as			
	A	$\lvert G(j\omega)H(j\omega)\rvert = 1$	B	$\lvert G(j\omega)H(j\omega)\rvert = 0$
	C	$\lvert G(j\omega)H(j\omega)\rvert = \infty$	D	$\lvert G(j\omega)H(j\omega)\rvert = 1/2$
29	None of the poles of a linear control system lie in the right half of the s-plane. For a bounded input, the output of this system			
	A	Is always bounded.	B	Always tends to zero.
	C	Could be unbounded.	D	Always tends to infinity.
30	A unity feedback system has the open loop transfer function G(s)=1/((s-1)(s+2)(s+3)) The nyquist plot of 'G' encircles the origin			
	A	Never	B	Once
	C	Twice	D	Thrice
31	A system has a transfer function (1 – s)/(1 +s). It is known as			
	A	Low-pass system.	B	High-pass system
	C	All pass system.	D	Class system.
32	In the Bode-plot of a unity feedback control system, the value of phase of G(jω) at the gain cross over frequency is -125°. The phase margin of the system is			
	A	-125°	B	-55°
	C	55°	D	125°
33	The transfer function of a system is $(2s^2 + 6s + 5)/((s+1)^2(s+2))$ The characteristic equation of the system is			
	A	$2s^2 + 6s + 5=0$	B	$(s+1)^2(s+2)=0$
	C	$2s^2 + 6s + 5+ (s+1)^2(s+2)=0$	D	$2s^2 + 6s + 5 -(s+1)^2(s+2)=0$
34	In the root locus for open-loop transfer function G(s)H(s)=K(s+6)/((s+3)(s+5), the break away and break-in points are located respectively at			
	A	-2 and -1	B	-2.47 and -3.77
	C	-4.27 and -7.23	D	-7.73 and -4.27
35	An open loop transfer function is given by $G(s)H(s)= K(s+1)/(s(s+2)(s^2+2s+2))$. It has			
	A	One zero at infinity.	B	Three zeroes at infinity.
	C	Two zeroes at infinity.	D	Four zeroes at infinity.
36	For the characteristic equation $s^2+4.8s+72=0$ the damping ratio and natural frequency respectively are			
	A	0.212, 8.1rad/s	B	0.299, 8.66rad/s
	C	0.283, 8.48rad/s	D	0.252, 8.88rad/s

37	The root locus of the system having the loop transfer function, $G(s)H(s)=K/(s(s+4)(s^2+4s+5))$ has			
	A	No breakaway point.	B	One real and two complex breakaway points.
	C	Three real breakaway points.	D	Only one breakaway point.
38	If the characteristic equation of a closed loop system is $1 + K/(s(s+1)(s+2)) =0$, the centroid at the asymptotes in root locus will be			
	A	Zero.	B	2
	C	-1	D	-2
39	A system with the characteristic equation $s^4+2s^3+11s^2+18s+18=0$ will have closed loop poles such that			
	A	All poles lie in the left half of the s-plane.	B	All poles lie in the right half of the s-plane.
	C	Two poles lie symmetrically on the imaginary axis of the s-plane.	D	No pole lies on the imaginary axis of the s-plane.
40	For a second order system, the damping ratio (ξ) is $0<\xi<1$, then the roots of the characteristic polynomial are			
	A	Real but not equal.	B	Complex conjugates.
	C	Real and equal.	D	Imaginary.
41	The open loop transfer function of a unity feedback control system is $G(s)=1/(s+2)^2$. The closed loop transfer function will have poles at			
	A	-2,0.2	B	-2,-1
	C	$-1\pm j$	D	-2,2
42	The characteristic polynomial of a system is $2s^5+s^4+4s^3+2s^2+2s+1$. The system is			
	A	Stable.	B	Marginally stable.
	C	Unstable.	D	Oscillatory.
43	Natural frequency of a unity feedback control system of transfer function $G(s)=10/(s(s+1))$ is			
	A	3.16 rad/sec.	B	0.5 rad/sec.
	C	4.6 rad/sec.	D	6.13 rad/sec.
44	In a closed loop feedback system with a positive value of feedback gain, the overall gain of the system will			
	A	Decrease	B	Increase
	C	Increase or decrease	D	Remain unaffected.
45	Which of the following systems has a tendency to oscillate?			
	A	Open loop system.	B	Closed loop system.
	C	Both open and closed loop system.	D	Neither open nor closed loop system.
46	The initial response when the output is not equal to the input is called			
	A	Transient response.	B	Dynamic response.
	C	Error response.	D	Static response.
47	Which of the following statements is correct for a system with the gain margin close to unity and the phase margin close to zero.			
	A	The system is relatively stable.	B	The system is oscillatory.
	C	The system is highly stable	D	The system is unstable.
48	A control system with excessive noise is likely to suffer from			
	A	Saturation in amplifying stages.	B	Oscillations.
	C	Loss of gain.	D	Vibrations.
49	In a stable control system, backlash can cause which of the following?			
	A	Underdamping.	B	Poor stability at low values of

				the open loop gain.
	C	Overdamping.	D	Low level oscillations.
50	Which of the following is exhibited by Root locus diagram.			
	A	The poles of the transfer function for a set of parameter values.	B	The response of the system to a step input.
	C	The bandwidth of the system.	D	The frequency response of the system.
51	Which are the starting points for the root loci?			
	A	Open loop zeros	B	Closed loop poles.
	C	Closed loop zeros.	D	Open loop poles.
52	Bode plot is used to analyse which of the following?			
	A	Minimum phase network.	B	Maximum phase network.
	C	Lag lead network.	D	All phase network.
53	The root locus is symmetrical about the real axis because			
	A	Complex roots occur in conjugate pairs.	B	Roots occur simultaneously in the left hand and right hand plane.
	C	All roots occur in pairs.	D	Roots occur only on right hand plane.
54	How can the steady state errors be minimized?			
	A	By increasing the system gain constant.	B	By increasing the damped frequency.
	C	By decreasing the damped frequency.	D	By decreasing the natural frequency.
55	A system which has some roots with real parts equal to zero, but none with positive real parts is			
	A	Marginally stable.	B	Absolutely unstable.
	C	Relatively stable.	D	Absolutely stable.
56	Introduction of negative feedback in a system does not lead to reduction in			
	A	Bandwidth	B	Instability
	C	Distortion	D	Overall gain
57	Error constants of a system are a measure of			
	A	Steady state response	B	Steady state and transient response
	C	Transient state response	D	Relative stability
58	Bandwidth is used as a means of specifying performance of a control system related to			
	A	Relative stability of the system	B	The constant gain
	C	The speed of response	D	All of the above.
59	In a system, if the poles lie off the real axis, then the system is			
	A	Over damped.	B	Critically damped.
	C	Under damped.	D	Marginally damped.
60	The transfer function of a first order control system is of the type			
	A	$1/(Ts^2+1)$	B	$1/(Ts+1)$
	C	Ts	D	1/Ts
61	In the s-plane, the unstable region is			
	A	Second and third quadrants including imaginary axis.	B	First and second quadrants including real axis.
	C	First and fourth quadrants including imaginary axis except the origin.	D	Second and fourth quadrants including real axis except the

				origin.
62	A system has poles at -1 and -5 and zeros at 1 and -2. The system is			
	A	Stable.	B	Marginally stable.
	C	Unstable.	D	Conditionally stable.
63	For a second order differential equation, if the damping ratio is 1, then			
	A	The poles are imaginary and complex conjugate.	B	The poles are negative, equal and real.
	C	The poles are in the right half of the s-plane.	D	The poles are negative and real.
64	If the complex poles of a system have greater real parts, then the overshoot is			
	A	Less	B	More
	C	Not affected.	D	Sometimes less and sometimes more.
65	Given the transfer function $G(s)= K/(s^2(1+sT))$. What is the type and order of the system.			
	A	2 and 3.	B	3 and 2.
	C	3 and 3.	D	1 and 2.
66	In a control system, excessive bandwidth should be avoided because			
	A	Noise is proportional to bandwidth.	B	It leads to slow response of the system.
	C	It leads to low relative stability.	D	It makes the system response fast.
67	The transfer function of a system is $G(s)= k(s+3)/(s(s+2+j4)(s+2-j4))$. The number of poles is			
	A	One	B	Two
	C	Three	D	Four
68	A system has a transfer function of $(1-s)/(1+s)$. What is its gain at 1 rad/sec.			
	A	1	B	0
	C	-1	D	2
69	The steady state error for a unit ramp input to the characteristic equation $s^2 + 2s + 8=0$ is			
	A	0.20	B	0.25
	C	0.30	D	0.50
70	A temperature control system is known as			
	A	Process control system	B	Cascade control system.
	C	Servomechanism.	D	Automatic control system.
71	Routh's array for a system is given below. s^4 1 3 5 s^3 1 2 0 s^2 1 5 s^1 -3 s^0 5 The system is			
	A	Stable.	B	Marginally stable.
	C	Unstable.	D	Conditionally stable.
72	If the system has multiple poles on the $j\omega$ axis, the system is			
	A	Stable.	B	Marginally stable.
	C	Unstable.	D	Conditionally stable.
73	Conditionally stable system is one which exhibits poor stability at			
	A	Increased values of open loop gain.	B	Reduced values of open loop

				gain.
	C	Low frequencies.	D	High frequencies.
74	A unity feedback system having a transfer function of G(s)=K/(s(s+1)). The steady state error for unit step position and unit acceleration inputs respectively are			
	A	Zero and zero.	B	Infinity and zero.
	C	Zero and infinity.	D	Infinity and infinity.
75	The number of sign changes in the entries in the first column of Routh's array denotes			
	A	The number of zeros of the system in the LHP.	B	The number of open loop poles in LHP.
	C	The number of roots of the characteristic polynomial in RHP.	D	The number of open loop zeros in RHP.
76	If the gain of the open loop system is doubled , the gain margin			
	A	Is not affected.	B	Gets doubled.
	C	Becomes one fourth.	D	Becomes half.
77	The poles of $F(s)=1/(1-e^{s})$ are located at			
	A	s=0 and 1.	B	$s=\pm j2n\pi$ (n=0,1,2…)
	C	s=1 only	D	No poles
78	A system has a loop gain as G(s)H(s)= K/(s(s+1)(s+2)(s+3)). The number of poles and zeros are respectively			
	A	2,2	B	1,4
	C	4,0	D	1,3
79	A second order system with no zeros has its poles at -3 +j4 and -3 –j4 in the s-plane. The undamped natural frequency and the damping factor of the system are respectively			
	A	4 rad/sec and 0.75	B	5 rad/sec and 0.80
	C	3 rad/sec and 0.60	D	5 rad/sec and 0.60
80	A second order system exhibits 100% overshoot. The damping co-efficient is			
	A	Equal to 0	B	Greater than 1.
	C	Equal to 1	D	Less than 1
81	Damping is proportional to			
	A	Gain	B	1/gain
	C	√gain	D	1/√gain
82	Two blocks having respective transfer functions G_1 and G_2 are connected in series cascade. The resultant gain will be			
	A	$G_1 + G_2$	B	$G_1 G_2$
	C	G_1/ G_2	D	G_2/G_1
83	Which of the following is used for Nyquist plot?			
	A	Open loop function.	B	Closed loop function.
	C	Characteristic function.	D	Damped function.
84	With feedback system			
	A	The transient response gets magnified.	B	The transient response decays slowly.
	C	The transient response decays at a constant rate.	D	The transient response decays more quickly.
85	Saturation of a stable system can cause			
	A	Conditional stability.	B	High –level oscillations.
	C	Overdamping.	D	Low –level oscillations.
86	The gain margin of any second order system, in dB, is			
	A	Infinite	B	-1 dB
	C	0 dB	D	Can not be determined without

				data
87	The main application of transfer function is in the study of			
	A	Steady state behavior of systems.	B	Transient behavior of systems.
	C	Steady state and transient behavior of systems.	D	Damped behavior of systems.
88	The transfer function of the system whose input and output are related by the differential equation $d^2y/dt^2 + 3dy/dt + 2y = x + dx/dt$ is given by			
	A	$s/(s^2+3s+2)$	B	$1/(s^2+3s+2)$
	C	$(s+1)/(s^2+3s+2)$	D	$(s+2)/(s^2+3s+2)$
89	The value of 'K' for which the system $s^3 + 3s^2 + 3s + 1 + k = 0$ becomes unstable is			
	A	K>8	B	K=8
	C	K=7	D	None of these
90	The sensitivity of a closed loop system to gain changes and load disturbances depends upon			
	A	Forward gain.	B	Frequency.
	C	Loop gain	D	All of the above.
91	The system with the characteristic equation (s+1)(s+2)(s-3)=0 is			
	A	Stable.	B	Marginally stable.
	C	Conditionally stable.	D	Unstable.
92	Settling time of a second order system for damping ratio ξ and frequency ω_n is given by			
	A	$4\xi\omega_n$	B	$4\omega_n/\xi$
	C	$4/(\xi\omega_n)$	D	$\xi\omega_n$
93	Nyquist criteria is used to find which of the following?			
	A	Absolute stability.	B	Dynamic stability.
	C	Relative stability.	D	Absolute and relative stability.
94	The gain of 6 dB/octave is equal to			
	A	-6 dB/decade.	B	6 dB/decade.
	C	20 dB/decade.	D	40 dB/decade.
95	In Routh Hurwitz criterion, if all the elements in one row are zero, then there are			
	A	Pairs of equal roots with opposite sign.	B	Conjugate roots forming a quadrate in the s-plane.
	C	Pairs of conjugate roots on imaginary axis.	D	All of these.
96	Gain margin is the reciprocal of the gain at the frequency at which the phase angle becomes			
	A	0°	B	180°
	C	270°	D	90°
97	The transfer function of a system is G(s)=100 /(1 +0.25s)/(1+0.5s). The phase shift at $\omega=0$ and $\omega=\infty$ will be			
	A	0° and -90°.	B	90° and 180°.
	C	90° and -90°.	D	0° and -180°.
98	The function $1/(j\omega T)$ has a slope of			
	A	-20 db/decade.	B	20 db/decade.
	C	-6 db/decade.	D	6 db/decade.
99	In Routh-Hurwitz criterion, if the first element in any row of the Routh's tabulation is zero, then			
	A	The elements in the next row become infinite.	B	The polynomial has to be divided by (s+a) where 'a' is a positive number.
	C	The system is highly unstable.	D	The system is oscillatory.

100	A minimum phase system with no zeros has a phase angle of -270° at the gain crossover frequency. The system is			
	A	Stable.	B	Marginally stable.
	C	Unstable.	D	Conditionally stable.
101	The steady-state error of a feedback control system with an acceleration input becomes finite in a			
	A	type 0 system	B	type 1 system
	C	type 2 system	D	type 3 system
102	The Laplace transform of e^(-2t)sin 2 wt is _____.			
	A	$\frac{2s}{(s+2)^2+2\omega^2}$	B	$\frac{2\omega}{(s-2)^2+4\omega^2}$
	C	$\frac{2\omega}{(s+2)^2+4\omega^2}$	D	$\frac{2s}{(s+2)^2+2\omega^2}$
103.	For a type one system, the steady – state error due to step input is equal to			
	A	infinite.	B	zero
	C	0.25	D	0.5.
104	The Equation 2s^4+s^3+3s^2+5s+10=0 has_____ roots in left half s plane			
	A	one	B	two
	C	three	D	four
105	The LVDT is primarily used for the measurement of			
	A	Displacement	B	velocity
	C	Acceleration	D	Humidity
106	A systems with gain margin close to unity or a phase margin close to zero is			
	A	Highly stable	B	Oscillatory
	C	Relatively stable	D	Unstable
107	The overshoot in the response of the system having the transfer function			

	16K/S(S^2+2S+16) for a unit-step input is			
	A	60%.	B	40%.
	C	20%.	D	10%.
108	The damping ratio of a system having the characteristic equation (S^2+2S+8)=0 is.			
	A	0.353	B	0.330.
	C	0.300	D	0.250
109	Electrical time-constant of an armature-controlled dc servomotor is			
	A	Equal to mechanical time-constant	B	Smaller than mechanical time-constant.
	C	Larger than mechanical time-constant	D	Not related to mechanical time-constant
110	Peak overshoot of step-input response of an under damped second-order system is Explicitly indicative of.			
	A	Settling time.	B	Rise time.
	C	Natural frequency.	D	Damping ratio.
111	The range of K for stability of a unity-feedback control system whose open-loop transfer function G(s)=K/S(S+1)(S+2)			
	A	0<K<1	B	0<k<6.
	C	0<K<8.	D	0<K<10
112	Consider the closed-loop system given by C(S)/R(S)=〖Wn〗^2/(S^2+2δWnS+〖Wn〗^2) Determine the values of δ and Wn so that the system responds to a step input with Approximately 5% overshoot and with a settling time of 2 seconds. (Use the 2% criterion).			
	A	0.69, 2.89	B	0.3, 0.5
	C	0.7, 0.7	D	0.8,0.95
113	A position control system is a/an			
	A	automatic Regulating system	B	Process control system
	C	Servomechanism	D	Stochastic control system

114	A temperature control system is known as			
	A	Process control system	B	Servomechanism
	C	Cascade Control system	D	On-Off control system
115	A system has the transfer function (1-S)/(1+s).It is known as			
	A	Low Pass system	B	high Pass system
	C	All Pass system	D	None
116	The type of a transfer function denotes the number of			
	A	poles at origin	B	Zeros at Origin
	C	Finite poles	D	poles at infinity
117	The transfer function of a system is 10/(1+s).The steady state error to unit step input when operated as a unity feedback system is.			
	A	ten	B	Zero
	C	one/eleven	D	Five
118	The Transfer function of a system is 1/(1+sT).The input to this system is tu(t).The output would track this system, but the error would be			
	A	0	B	T^2
	C	T	D	T/2
119	All all-Pass network imparts only			
	A	Negative phase shift to input	B	Positive phase shift to input
	C	(plus-minus) 90 phase shift to input	D	(plus-minus) 180 phase shift to input
120	Which input yields natural response?			
	A	ac input	B	dc input
	C	impulse input	D	a ramp input
121	If the system has multiple pole on jw axis, the system is			
	A	Stable	B	Unstable

	C	marginally stable	D	conditionally stable
122	Sinusoidal oscillators are			
	A	Stable	B	Unstable
	C	marginally stable	D	conditionally stable
123	The number of sign changes in the entries in the first column of Rouths array denotes the number of			
	A	zeros of the system in RHP	B	roots of the characteristics polynomial in RHP
	C	open loop poles in RHP	D	open loop zeros in RHP
124	An On-Off Controller is a			
	A	P Controller	B	integral controller
	C	non-linear controller	D	PID controller
125	A lag network for compensation normally consist off			
	A	R only	B	R and C Elements
	C	R and L elements	D	R,L and C elements
126	Consider a characteristic equation s^4+3s^3+5s^2+6s+K+10=0.The condition for stability is			
	A	K>5	B	-10<K
	C	K>-4	D	-10<K<-4
127	The phase crossover Frequency is the frequency at which the phase shift is			
	A	0 degree	B	90 degree
	C	180 degree	D	360 degree
128	For a system to be stable gain crossover must occur_____ phase crossover			
	A	prior to	B	After
	C	Simultaneously	D	in direct proportion
129	The Characteristic equation of a feedback control system is given by s^3+5s^2+(6+K)s+K=0 Where K>0 is a scalar variable parameter. In the root locus diagram of the system the			

	asymptotes of the root loci for large values of k meet at a point in the s-plane, whose co-ordinates are			
	A	(-3,0)	B	(-2,0)
	C	(-1,0)	D	(2,0)
130	A unity-feedback control system has the openloop transfer function G(s)=4(1+2s)/ s^2(s+2).If the input to the system is a unit ramp,the steady state error will be.			
	A	0	B	0.5
	C	2	D	infinity
131	Traffic light on roads are example of			
	A	closed-loop system	B	open-loop system
	C	both open-loop and closed loop	D	open-loop but can be made closed loop
132	The gain margin of the system is -10 dB.If it is increased to 5 dB. Then the system is			
	A	Stable	B	Unstable
	C	marginally stable	D	unstable for -10 db itself
133	Match the following (a)Force (p)Capacitance (b)Velocity (q) Inductance (c) Mass (r) Transformer (d) Spring constant (s) Current (e) Lever (t) Voltage			
	A	a-s,b-t,c-p,d-q,e-r	B	a-t,b-s,c-p,d-q,e-r
	C	a-s,b-t,c-q,d-p,e-r	D	a-r,b-t,c-p,d-q,e-s
134	In closed loop control system, with positive value of feedback the overall gain of the system will			
	A	Decrease	B	Increase
	C	Be Affected	D	Any of above
135	Which one of the following is an open loop control system?			

	A	Field Controlled D.C motor	B	Ward Leonard control
	C	Metadyne	D	Stroboscope
136	An Externally introduced signal affecting the controlled output is called a			
	A	Feedback	B	Stimulus
	C	Signal	D	Gain Control
137	A computer system working under unknown random action is called			
	A	Digital data system	B	Stochastic control system
	C	Adaptive Control system	D	None
138	A car is running at a constant speed of 50km/hour, which of the following is the Feedback Element of Driver?			
	A	Clutch	B	Eyes
	C	Needle of Speedometer	D	Steering wheel
139	Increases steady state accuracy			
	A	Integrator	B	Differentiator
	C	Phase lead Compensator	D	Phase lag Compensator
140	A control system with excessive noise is likely to suffer from			
	A	Saturation in amplifying stage	B	loss of gain
	C	Vibrations	D	Oscillations
141	Zero initial conditions for a system means			
	A	Input reference signal is zero	B	zero stored energy
	C	no initial movement of moving parts	D	system is at rest and no energy is stored in any of its components
142	Due to which of the following reasons excessive bandwidth in control systems Should be avoided?			
	A	It leads to slow speed of response	B	It leads to low relative stability

	C	Noise is Proportional to bandwidth	D	None of above
143	The capacitance in force current analogy is analogous to			
	A	Momentum	B	Velocity
	C	Displacement	D	Mass
144	The viscous friction co-efficient ,in force voltage analogy is analogous to			
	A	Charge	B	Resistance
	C	reciprocal of inductance	D	reciprocal of conductance
145	The temperature, under thermal and electrical system analogy, is considered analogous to			
	A	Voltage	B	Current
	C	Capacitance	D	Charge
146	Transient response of the system is mainly due to			
	A	Inertia forces	B	Internal forces
	C	Stored energy	D	Friction
147	The transfer function is applicable to which of the following			
	A	Linear and time invariant system	B	Linear and time variant system
	C	Linear systems	D	Non-Linear systems
148	The frequency and time domain are related through which of the following?			
	A	Laplace Transform and Fourier Integral	B	Laplace Transform
	C	Fourier Integral	D	Either B or C
149	The type 1 system has____ the origin			
	A	No pole	B	Net pole
	C	Simple pole	D	No pole
150	Velocity error constant of a system is measured when the input to the system is unit _____function.			
	A	Parabolic	B	Ramp

	C	Impulse	D	Step
151	Which one of the following is the best method for determining stability and transient response?			
	A	Root Locus	B	Bode Plot
	C	Nyquist Plot	D	None of Above
152	Addition of zeros in transfer function causes which of the following?			
	A	Lead Compensation	B	Lag Compensation
	C	Lead-Lag Compensation	D	None of Above
153	In order to increase the damping of badly under damped system which of the following compensators may be used?			
	A	Phase-lead	B	Phase-lag
	C	Both (a) and (b)	D	Either (a) and (b)
154	phase lag-lead network introduces in the output			
	A	lag at all Frequencies	B	lag at high frequencies and lead at low frequencies
	C	lag at low frequencies and lead at high frequencies	D	None of Above
155	differentiator is usually not part of input system because it			
	A	Reduces damping	B	Reduces Gain Margin
	C	Increases input noise	D	Increases error
156	Which one of the following is output of Thermocouple			
	A	A.C Voltage	B	Direct Current
	C	D.C Voltage	D	Alternating Current
157	When a human being tries to approach an object, his brain acts as			
	A	An error measuring device	B	A controller
	C	An actuator	D	An amplifier

158	Assertion (A): Feedback control systems offer more accurate control over open-loop systems. Reason (R): The feedback path establishes a link for input and output comparison and subsequent error correction			
	A	Both A and R are true and R is the correct explanation of A	B	Both A and R are true but R is NOT the correct explanation of A
	C	A is true but R is false	D	A is false but R is true
159	Consider the following statements: 1. The effect of feedback is to reduce the system error 2. Feedback increases the gain of the system in one frequency range but decreases in another 3. Feedback can cause a system that is originally stable to become unstable Which of these statements are correct?			
	A	1, 2, 3 and 4	B	1 and 2
	C	Only 1 and 3	D	1 and 3
160	Consider the following statements which respect to feedback control systems: 1. Accuracy cannot be obtained by adjusting loop gain. 2. Feedback decreases overall gain. 3. Introduction of noise due to sensor reduces overall accuracy. 4. Introduction of feedback may lead to the possibility of instability of closed loop system. Which of the statements given above are correct?			
	A	1, 2, 3 and 4	B	Only 1, 2 and 4
	C	Only 1 and 3	D	Only 2, 3 and 4
161	A negative-feedback closed-loop system is supplied to an input of 5V.The system has a forward gain of 1 and a feedback gain of a 1. What is the output voltage?			
	A	1.0 volt	B	1.5 volt
	C	2.0 volt	D	2.5 volt
162	The transfer function of a linear-time-invariant system is given as 1/(S+1). What is the			

	steady-state value of the unit-impulse response?			
	A	Zero	B	One
	C	two	D	Infinite
163	If the Nyquist plot of the loop transfer function G(s) H(s) of a closed-loop system encloses the (-1, jo) point in the G(s) H(s) plane, the gain margin of the system is			
	A	zero.	B	greater than zero
	C	less than zero	D	infinity
164	If the system matrix of a linear time invariant continuous system is given by A=[0 1 -3 -5] its characteristic equation is given by $s^2 + 5S + 3$			
	A	$s^2 + 5S + 3$	B	〖 s〗^2-3S-5
	C	〖 s〗^2+3S+5	D	〖 s〗^2+S+2
165	Given Lf(t)=F(s),L[f(t)e^(-at)] is equal to			
	A	F(s+a)	B	F(s)/F(s+a)
	C	〖 e〗^(-as) F(s)]	D	〖 e〗^(as) F(s)
166	A system has the transfer function (1-S)/(1+s).what is the gain at 1 rad/sec.			
	A	1	B	0
	C	-1	D	-0.5
167	A system has the transfer function of 1-s/1+s. It is a			
	A	non-minimum phase system	B	minimum phase system
	C	Low Pass system	D	second order system
168	G(s)=1/s(1+6s).The system is			
	A	stable	B	unstable

	C	marginally stable	D	conditionally stable
169	A unity-feedback control system has transfer function G(jw)=K/jw(j0.2w+1)(j0.05w+1).The phase crossover frequency of the Nyquist plot is given by.			
	A	1 rad/sec	B	100 rad/sec
	C	10 rad/sec	D	None
170	A second order differential Equation is given by (dx/dt)^2 +5(dx/dt)+7x=7y.The undamped natural frequency and damping ratio are.			
	A	1,5	B	5,7
	C	1,√7	D	√7,0.94
171	A second order differential Equation is given by (dx/dt)^2 +5(dx/dt)+7x=7y.The damed natural frequency damping coefficient and time constant are.			
	A	0.865,√7,0.945	B	0.903,2.5,0.4
	C	0.865,0.4,2.5	D	0.4,2.5,0.865
172	A second order system with no zeros has its pole located at -3+j4 and -3-j4 in the s-plane.The undamped natural frequency and the damping factor of the system respectively.			
	A	4 rad/sec and 0.75	B	3 rad/sec and 0.60
	C	5 rad/sec and 0.80	D	5 rad/sec and 0.60
173	A second order system has a Transfer function given byG(s)=25/(s^2+8s+25).If the system, initially at rest, is subjected to a unit step input at t=0,the second peak in the response will occur at			
	A	π sec	B	π /3 sec
	C	2π /3 sec	D	π /2 sec
174	The open loop transfer function of the feed-back control system is G(s)H(s)=1/(s+1)^3.The gain margin of the is			
	A	2	B	4
	C	8	D	16
175	A linear discrete time system has the characteristic equation z^3-0.81z=0.The system is			

	A	stable	B	marginally stable
	C	unstable	D	stability cannot be assessed from given information
176	In the root locus for open-loop transfer function G(s)H(s)=K(s+6)/(s+3)(S+5),the breakaway and breakin points are located respectively at.			
	A	(-2,-1)	B	(-2.47,-3.77)
	C	(-4.27,-7.73)	D	(-7.73,-4.27)
177	For a two phase servomotor which one of following statements is not true?			
	A	The rotor diameter is small	B	The rotor resistance is low
	C	The applied voltage are seldom balanced	D	The torque speed characteristics are linear
178	The maximum phase shift that can be obtained by using a lead compensator with transfer function G(s)=4(1+0.15s)/(1+0.05s)is equal to.			
	A	15 degree	B	30 degree
	C	45 degree	D	60 degree
179	A system has openloop transfer function G(s)H(S)=10/s(s+1)(s+2).what is steady state error when it is subjected to step input r(t)=[1+2t+3/2(t^2)]			
	A	0	B	0.4
	C	4	D	infinity
180	The closedloop transfer function of a control system is given by C(s)/R(s)=1/(1+s).For the input r(t)=sint,the steady state value of c(t) is equal to			
	A	(1/√2)cost	B	1
	C	(1/√2)sint	D	(1/√2)sin(t-π/4)
181	The given 3×3 matrix is [4 -4 2; -4 5 -2; 2 -2 1]is			
	A	positive semi definite	B	negative semidefinite
	C	positive definite	D	negative definite
182	The rise time for c(t)=1-e^(-t) is			

	A	0.2198s	B	2.198s
	C	21.98s	D	2.309s
183	For G(s)=(s+1)/s(0.5s+1).The corner frquencies are.			
	A	0.5 and 1	B	0 and 2
	C	2 and 1	D	none

1	A Karnaugh map is used for			
	A	Minimising Boolean expressions	B	Develop digital circuits e
	C	Computer interfac	D	None of these
2	A five variable Karnaugh map contains			
	A	4 cells	B	8 cells
	C	16 cells	D	32 cells
3	Quine McCluskey method uses			
	A	Tabular Method	B	Karnaugh map
	C	Boolean Algebra	D	None of these
4	OR-AND realisation is equivalent to			
	A	SOP	B	POS
	C	K-map	D	None of these
5	The minimisation of logic expression is done due to			
	A	Reduce space	B	Reduce number of gates
	C	Reduce cost	D	All of these
6	A multiplexer has			
	A	One data input and two or more than two data outputs	B	One data output and two or more than two data inputs
	C	One data output and a number of data input and a number of select inputs	D	One data output and a number of select inputs
7	A two variable Boolean logic function can be implemented by			
	A	4:1 multiplexer	B	1:4 demultiplexer
	C	NAND Gate	D	NOR Gate
8	A demultiplxer can be used as			
	A	A counter	B	A flip flop
	C	A combinational circuit	D	A 7-segment display
9	The ..... gate is used as two bits comparator.			
	A	AND	B	OR
	C	NAND	D	EX-OR
10	Multi channel signals can be transmitted through a single channel by using.....			

	A	Demultiplexers	B	Encoder
	C	Decoder	D	Multiplexer
11	In 16:4 priority encoder, lowest priority is given on			
	A	7	B	0
	C	9	D	F
12	A full adder can be designed			
	A	Using 2 half adders	B	Using 3 half adders
	C	Using 4 half adders	D	Using 5 half adders
13	In BCD addition, 0110 is required to be added to sum for getting the correct result, if			
	A	The sum of two BCD numbers is not a valid BCD number	B	The sum of two BCD numbers is not a valid 3BCD number or a carry is produced
	C	A carry is produced	D	None of these
14	The ALU is used to perform			
	A	Only logical operation	B	Arithmetic and logical operation
	C	Only arithmetic operation	D	Control operations
15	A multiplier circuit consists of			
	A	AND gate and Full adders	B	OR gate and EX-OR gates
	C	NAND	D	None of these
16	The final carry output equation of carry look ahead addition is			
	A	C_3=PCin + G	B	C_3=P+Cin+G
	C	C_3=P=GCin	D	None of these
17	74283 is a			
	A	4 bit adder	B	4 bit carry look ahead adder
	C	4 bit subtractor	D	None of these
18	Serial adder is			
	A	Faster than parallel adder	B	Slower than parallel adder
	C	Costly with respect to parallel adder	D	None of these
19	A flip-flop can be built by using			
	A	NAND gates	B	AND gates
	C	AND or OR gates	D	None of these

20	Race around condition occurs in JK flip-flop if			
	A	J=1,K=1	B	J=0,K=0
	C	J=0,K=1	D	J=1,K=0
21	In a flip-flop with Preset and Clear terminals			
	A	Preset and Clear operation perform separately	B	In preset operation, clear is disabled
	C	In clear operation, preset is disabled	D	None of these
22	Master salve is used to			
	A	Improve its reliability	B	Reduce power dissipation
	C	Eliminate race condition	D	Increase its clock frequency
23	A transparent latch is			
	A	D flip-flop	B	T flip-flop
	C	T or D flip-flop	D	T and D flip-flop
24	The initial output of JK flip-flop Q is 1. It changes to 0, when a clock pulse is applied. The input J and K will be			
	A	J=1, K=1	B	J=0, K=0
	C	J=0, K=1	D	J=1, K=0
25	Flip-flops can be used as			
	A	Latches	B	Registers
	C	Counters	D	All of these
26	The digital memory element consists of			
	A	Flip-flops	B	NAND gates
	C	NOR gates	D	Shift registers
27	Flip-flops can be used to store			
	A	One bit data	B	Two bit data
	C	One byte data	D	Two byte data
28	Right shifting the contents of a shift register by one bit is equivalent to			
	A	Dividing the content by 2	B	Dividing the content by 10
	C	Multiplying the content by 2	D	Multiplying the content by10
29	Parallel loading of the 4-bit register means			
	A	Left shifting the data in all four flip-flops simultaneously	B	Right shifting the data in all four flip-flops simultaneously

	C	Loading data in two of the flip-flops	D	Loading data in all four flip-flops at the same time
30	How many clock pulses are required to completely load serially a 8 bit shift register ?			
	A	8	B	7
	C	4	D	5
31	In a 4-bit register, $\bar{Q}$ of the last flip-flop is connected with the J terminal of first flip-flop and Q of the last flip-flop is connected with the J terminal of first flip-flop. The shift register acts as			
	A	Ring counter	B	Binary counter
	C	Shift register	D	None of these
32	The data can be taken out of a PIPO shift register from			
	A	The Q output of the first FF	B	The Q output of the last FF
	C	All of the Q outputs together	D	None of these
33	By adding recirculating lines to a 4-bit Parallel-In, Serial-Out shift register , it becomes			
	A	A Parallel-In, Serial and Parallel Out	B	A Serial-In, Parallel and Serial Out
	C	A Serial- Parallel-In ,Series and Parallel Out	D	A bidirectional In, Parallel and Series Out
34	A sequence of equally spaced timing pulses may be easily generated by which type of counter circuit?			
	A	Ring Shift	B	Clock
	C	Johnson	D	Binary
35	The difference between a Ring counter and a Johnson counter is			
	A	Ring counter is faster	B	The feedback is reversed
	C	Johnson is faster	D	None of these
36	Why stepper motors are very popular in digital systems?			
	A	Low cost	B	Driven by sequential signals
	C	Can be able to provide repetitive mechanical movement	D	b & c
37	In design a counter circuit, the most commonly used flip-flop is			
	A	D type	B	RS type
	C	Latch	D	JK type
38	A decade counter can be designed by			
	A	4 flip-flop and by pass 6 states	B	10 flip-flop and by pass 10 states

	C	4 flip-flop and by pass 5 states	D	4 flip-flop and by pass 4 states
39	Three mod-5 counters are connected in cascade. The overall modulus of circuit will be			
	A	Mod-10 counter	B	Mod-15 counter
	C	Mod-125 counter	D	None of these
40	A 3-bit ripple counter will have the counting sequence as			
	A	000,001,010,011,100,101,110,111	B	000,001,011,111
	C	1,11,11,01,01,10,00,11,00,00,00,000	D	None of these
41	The example of sequential circuit is			
	A	Counter	B	Shift register
	C	Combinational logic circuit	D	7 - segment display
42	A synchronous Melay machine has			
	A	An input decoder, memory elements and an output decoder	B	An memory elements and an output decoder
	C	An input decoder and an output decoder	D	An input decoder and memory elements
43	The asynchronous Moore machine consist of			
	A	An input decoder and an output decoder	B	An input decoder, memory elements and an output decoder
	C	An memory elements and an output decoder	D	An input decoder and memory elements
44	When the output of a sequential circuit depends on the present input as well as previous output states, the circuit is called			
	A	Moore machine	B	Mealy machine
	C	Sequential circuit	D	All of these
45	An bistable multivibrator has			
	A	One stable state	B	Two stable state
	C	One quasi-stable state	D	Two quasi-stable state
46	Pulse stretches is the alternative name of			
	A	Monostable multivibrator	B	555 timer
	C	Flip-flop	D	Schmitt-trigger
47	A 556 timer IC consists of			
	A	Two 555 timer	B	Three 555 timer
	C	Four 555 timer	D	None of these

48	Which multivibrator IC is non-triggerable?			
	A	74121	B	74122
	C	74123	D	None of these
49	A non-triggerable monostable multivibrator has Rext = 10K and Cext = 0.01µF. It's pulse-width will be			
	A	0.7ms	B	0.6ms
	C	0.07ms	D	0.06ms
50	In a IC 555 timer, it will be triggered when input voltage connected is			
	A	Less than Vcc/3	B	Less than 2 Vcc/3 Between
	C	Greater than Vcc/3	D	None of these
51	The differential mode			
	A	Opposite polarity signals are applied to the inputs	B	The gain is unity
	C	The outputs are of different amplitudes	D	Only one supply voltage is used
52	Common mode gain is			
	A	Very high	B	Very low
	C	Always unity	D	Unpredictable
53	An averaging amplifier has five inputs. The ratio Rf/Ri must be			
	A	5	B	0.2
	C	1	D	2
54	For step-input, the output of an integrator is a			
	A	Pulse	B	Triangular waveform
	C	Spike	D	Ramp
55	In a differentiator, the feedback element is a			
	A	Resistor	B	Capacitor
	C	Zener Diode	D	Voltage divider
56	Current cannot flow to the ground through			
	A	A mechanical ground	B	An ac ground
	C	A virtual ground	D	An a ordinary ground
57	In an averaging circuit, the input resistance are			
	A	Equal to the feedback resistor	B	Less than the feedback resistor

	C	Greater than the feedback resistor	D	Unequal
58	When a large sine wave drives Schmitt trigger, the output is a			
	A	A rectangular wave	B	Triangular wave
	C	Rectified sine wave	D	Series of ramps
59	To work properly, many IC comparators need an external			
	A	Pull up resistor	B	Compensating capacitor
	C	Bypass capacitor	D	Compensating resistor
60	The trip point of comparator is the input voltage that causes			
	A	The circuit to oscillate	B	Peak detection of the input signal
	C	The output to switch states	D	Clamping to occur
61	The zero-level detector is one application of a			
	A	Comparator	B	Differentiator
	C	Summing Amplifier	D	Diode
62	Noise on the input of a comparator can cause the output			
	A	Hang up in one state	B	Go to zero
	C	Change back and forth erractically between two states	D	Produce the amplified noise signals
63	The miller input capacitance of an amplifier is depend, in part, on			
	A	The input – coupling	B	The voltage gain
	C	The bypass capacitor	D	None of these
64	An amplifier has the following critical frequencies: 1.2 kHz, 950Hz and 8.5kHz. The bandwidth is			
	A	7550Hz	B	7300Hz
	C	6800Hz	D	7050Hz
65	Ideally, the midrange gain of the amplifier			
	A	Increases with frequency	B	Decreases with frequency
	C	Remains constant with frequency	D	Depends on the coupling capacitors
66	If the fT of a transistor use in a certain amplifier is 75 MHz and the bandwidth is 10 MHz, the voltage gain must be			
	A	750	B	7.5
	C	10	D	1

67	In the midrange of an amplifier's bandwidth, the peak output voltage is 6 V. At the lower critical frequency, the peak output voltage is			
	A	3 V	B	3.82 V
	C	8.48 V	D	4.24 V
68	At the upper critical frequency, the peak output voltage of a certain amplifier is 10 V. The peak voltage in a midrange of the amplifier is			
	A	7.07 V	B	6.37 V
	C	14.14 V	D	10 V
69	The lower critical frequency of a direct-coupled amplifier with no bypass capacitor is			
	A	Variable	B	0 Hz
	C	Depend on the bias	D	None of these
70	One advantage of a class B push-pull amplifier is			
	A	No quiescent current drain	B	η of 78.5%
	C	Greater η than class A	D	All of above
71	If the load power is 3 mV and DC power is 150 mW, the efficiency is			
	A	0	B	2%
	C	3%	D	20%
72	The instantaneous operating point swings along			
	A	The DC load line	B	The AC load line
	C	Both load lines	D	Neither load line
73	An amplifier has two load lines because			
	A	It has AC and DC collector resistances	B	DC acts on one and AC acts another
	C	It has two equivalent circuits	D	All of above
74	The current drain of an amplifier is the			
	A	Total AC current from the generator	B	Total DC current from the supply
	C	Current gain from base – to – collector	D	Current gain from collector – to – base
75	Cross over distortion is a problem for			
	A	Class A amplifiers	B	Class AB amplifiers
	C	Class B amplifiers	D	None of these
76	Guard driving reduces the			
	A	CMRR of an IA	B	Leakage current in the shielded cable

	C	Voltage gain of the first stage	D	Common-mode input voltage
77	In a voltage-controlled current source			
	A	A current booster is never used	B	The load is always floated
	C	A stiff current source drives the load	D	The load current equals Isc
78	The Howland current source produces a			
	A	Unidirectional floating load current	B	Bidirectional single-ended load current
	C	Unidirectional single-ended load current	D	Bidirectional floating load current
79	To make a basic instrumentation amplifier, it takes			
	A	One op-amp with a certain feedback arrangement	B	Two op-amp and seven resistors
	C	Three op-amps and seven capacitors	D	Three op-amps and seven resistors
80	When we trim a resistor, we are			
	A	Making a fine adjustment	B	Reducing its value
	C	Increasing its value	D	Making a coarse adjustment
81	Typically, an IA has an external resistor used for			
	A	Establishing the output impedance	B	Setting the voltage gain
	C	Setting the current gain	D	Interfacing with an instrument
82	In the OTA, the transconductance is controlled by			
	A	The ac supply voltage	B	A bias current
	C	The input signal voltage	D	The manufacturing process
83	An FM receiver has an IF frequency that is			
	A	88MHz-108MHz range	B	540kHz-1640kHz range
	C	455kHz	D	10.7MHz
84	In order to handle all combinations of input voltage polarities, a multiplier must have			
	A	Four-quadrant capability	B	Three-quadrant capability
	C	Four inputs	D	Dual-supply voltages
85	When the two inputs of a multiplier are connected together, the device operates as a			
	A	Voltage doubler	B	Square root circuit
	C	Squaring circuit	D	Averaging circuit
86	Amplitude modulation is basically a			

	A	Summing of two signals	B	Multiplication of two signals
	C	Subtraction of two signals	D	Non-linear process
87	The output of an AM detector goes directly to the			
	A	IF amplifier	B	Mixer
	C	Audio Amplifier	D	Loudspeaker
88	A PLL maintains lock by comparing			
	A	The phase of two signals	B	The frequency of two signals
	C	The amplitude of two signals	D	None of these
89	Which of the following amplifier compensates for drift?			
	A	Low gain amplifier	B	High gain amplifier
	C	DC amplifier	D	Differential amplifier
90	If a square wave is integrated by integrator using op-amp, the output is			
	A	Triangular wave	B	Ramp
	C	Sine Wave	D	None of these
91	A good op-amp has			
	A	Very high bandwidth	B	Narrow bandwidth
	C	High selectivity	D	All of these
92	The loss of precision in quantity is called			
	A	Down time	B	Delay
	C	Unavoidable delay	D	None of these
93	Photolithography involves			
	A	Making photographic mask and photoetching	B	Only photoetching
	C	Only masking	D	None of these
94	The positive clipper can be easily converted into negative clipper by			
	A	Reversing diode and changing the polarity of reference voltage	B	Reversing diode only
	C	Changing the polarity	D	None of these
95	..... regulator operates the power transistors as high frequency on/off switch.			
	A	Series	B	Short
	C	Switching	D	None of these

96	The high-frequency response in RC active filters using op-amp is due to			
	A	BW	B	Gain
	C	Gain,BW product	D	High frequency
97	By cascading LPF and HPF active filter, the resulting circuit is			
	A	BPF	B	Narrow BPF
	C	Wide BPF	D	All of these
98	The magnitude of the gain or integrator transfer function using op-amp is			
	A	WR_1C_f	B	$-1/WR_1C_f$
	C	$-WR_1C_f$	D	$1/WR_1C_f$
99	If R1=R2, then B=0.5, the total time T of square wave in astable multivibrator using op-amp is			
	A	T=RC	B	T=2 RC ln 3
	C	T=2 RC ln 2	D	T=2RC ln (1+ 0.5)
100	The total time of the pulse from monostable multivibrator is			
	A	T=2 RC	B	T=0.3 RC
	C	T=0.69 RC	D	T= RC ln (1+VD+Vsat)/1-B
101	The simplifeid for of logical expression $A\bar{E}+\bar{A}\bar{E}+\bar{A}E+AE$ is			
	A	1	B	A
	C	AB	D	None of these
102	A multiplexer, with 3-bei data select inputs, is a			
	A	4:1 multiplexer	B	8:1 multiplexer
	C	16:1 multiplexer	D	32:1 multiplexer
103	Minimisation of Boolean logical expressions helps to reduce			
	A	Space	B	Number of gates
	C	Cost	D	Space,number of gates and cost
104	In 7-segment display system, zero blanking is used to blank out			
	A	All the leading zeros	B	All the trailing zeros
	C	The zero in the MSB(location)	D	a and b
105	In binary to gray converter, ... gate is used.			
	A	AND	B	OR
	C	NAND	D	EX-OR

106	In digital electronics addition is performed using			
	A	Half adders	B	Half subtractors
	C	Adders with ones complement representation of negative numbers	D	None of these
107	A half adder consists of ..... gate			
	A	AND	B	EX-OR and AND
	C	NAND	D	None of these
108	An N bit adder consists of			
	A	2 full addrs	B	N full adders
	C	4 full adders	D	N-1 full adders
109	2's complement of a number is			
	A	1's complement of a number +1	B	1's complement of a number -1
	C	1's complement of a number +10	D	None of these
110	The invalid state of SR flip-flop is			
	A	S=1,R=1	B	S=0,R=0
	C	S=0,R=1	D	S=1,R=0
111	When T filp-flop is set, its output will be			
	A	Q=0,Q̄=1	B	Q=0,Q̄=0
	C	Q=1,Q̄=1	D	Q=1,Q̄=0
112	JK flip-flop can be used as Toggle swirch when			
	A	J and K connected to ground	B	J connected to ground and K connected to +Vcc
	C	J and K connected to +Vcc	D	None of these
113	In a clocked SR flip-flop, R is connected with S through an inverter, the cicuit is called			
	A	JK flip-flop	B	T flip-flop
	C	D flip-flop	D	None of these
114	The initial output of SR flip-flop Q is 0. It changes to 1, when a clock pulse is applied. The input S and R will be			
	A	S=1, R=1	B	S=0, R=0
	C	S=0, R=1	D	S=1, R=0
115	A 4-bit PISO shift register will receive 4 bits of .....data and data will shift by..... position(s) for each clock pulse.			

	A	Parallel, one	B	Parallel, two
	C	Serial, one	D	Serial, two
116	A n bit shift register can not be used as			
	A	Module n counter	B	Module 2n counter
	C	Serial to parallel conversion	D	Parallel to serial conversion
117	The universal shift register can be used as			
	A	Serial to parallel conversion	B	Parallel to serial conversion
	C	Serial to serial conversion	D	a,b and c
118	What is the name of shift register that will accept parallel or a bidiretional serial load amd will out data in parallel or bidirectional serial form?			
	A	Universal	B	SIPO
	C	PISO	D	Tristate
119	What is the modulas of 5-bit rippel counter			
	A	16	B	32
	C	5	D	64
120	A twisted ring counter consisting of 6 fipl-flops, will have			
	A	6 states	B	12 states
	C	64 states	D	128 states
121	A mod-2 counter, followed by a mod-5 counter is			
	A	Mod-5 counter followed by a mod-2 counter	B	Mod-11 counter
	C	Mod-9 counter	D	Decade counter
122	Any sequential logical cicuit consist of			
	A	Only flip-flops	B	Only gates
	C	Flip-flops and combitional logic circuits	D	Only combitional logic circuits
123	Any sequential cicuits consist of			
	A	Combitional logic as well as memory elements	B	Combitional logic only
	C	Memory elements	D	None of these
124	The sequential machine is a			
	A	Feedback system	B	Feedback and non-feedback system

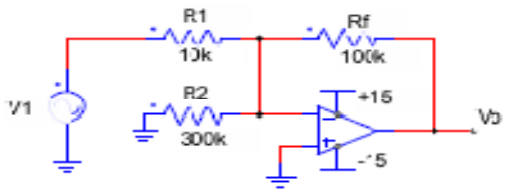
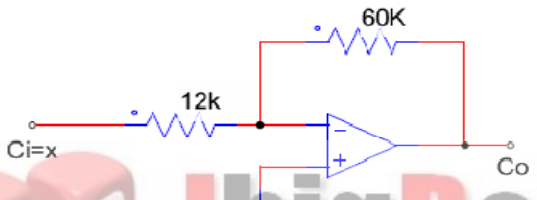
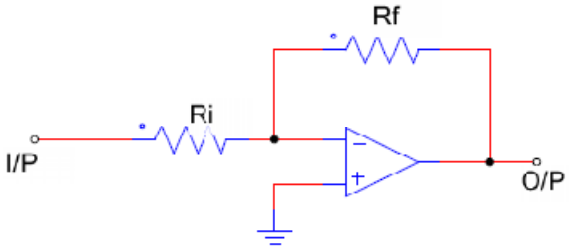
	C	Non-feedback system	D	None of these
125	The Moore machine is defined by the equations			
	A	Next state=F(Present state,Inputs) and Output=G(Present state)	B	Next state=F(Inputs) and Output=G(Present state)
	C	Next state=F(Present state) and Output=G(Present state)	D	Next state=F(Present state,Inputs)
126	The Mealy machine is defined by the equations			
	A	Next state=F(Present state,Inputs) and Output=G(Present state,Inputs)	B	Next state=F(Present state) and Output=G(Present state,Inputs)
	C	Next state=F(Present state,Inputs) and Output=G(Inputs)	D	Next state=F(Inputs) and Output=G(Present state,Inputs)
127	The asynchronous Mealy machine consists of			
	A	An input decoder and an output decoder	B	An input decoder, memory elements and an output decoder
	C	Memory elements and an output decoder	D	An input decoder and memory elements
128	The synchronous Moore machine has			
	A	An input decoder, memory elements and an output decoder	B	Memory elements and an output decoder
	C	An input decoder and an output decoder	D	An input decoder and memory elements
129	Reduced state diagram of any state table can obtained from			
	A	Inspection	B	Partitioning
	C	Implication tabel	D	All of these
130	A sequential circuit can be designed with the help of			
	A	State table	B	State Diagram
	C	K-maps	D	All of these
131	An astable multivibrator has			
	A	One stable state	B	Two stable state
	C	One quasi-stable state	D	Two quasi-stable state
132	An astable multivibrator can be triggered			
	A	When output is high	B	When output is low
	C	Triggering pulse is not required	D	None of these

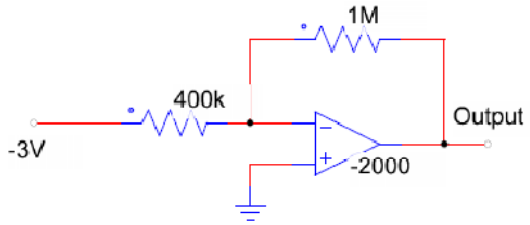
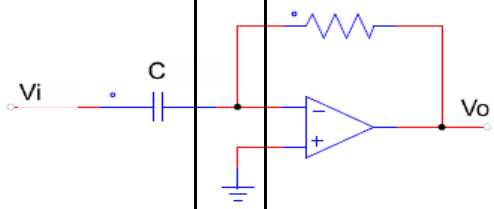
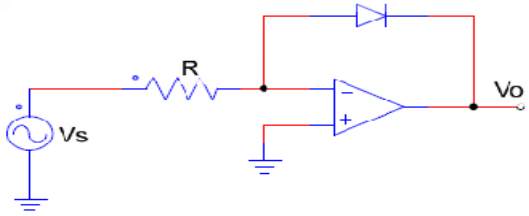
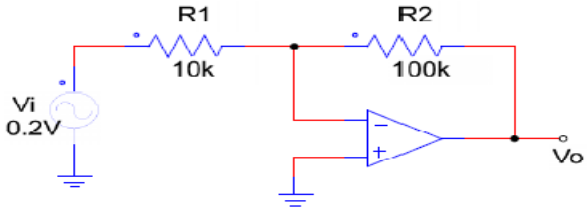
133	An pulse width of retriggerable monostable multivibrator can be controlled			
	A	Frequency of trigger pulse	B	External resistance and capacitor
	C	Amplitude of trigger pulse	D	None of these
134	An non-retriggerable monostable multivibrator(One Shot) can be triggered			
	A	When is $\bar{A}_1$ low and B is low to high	B	When $\bar{A}_2$ is low and B is low to high
	C	When $\bar{A}_1$ and $\bar{A}_2$ are low and B is low to high	D	All of these
135	An retriggerable monostable multivibrator can be triggered			
	A	When $\bar{A}_1$ and $\bar{A}_2$ are grounded and B_2 is high, B_1 is low to high	B	When $\bar{A}_1$ and $\bar{A}_2$ are +Vcc and B_2 is high, B_1 is low to high
	C	When $\bar{A}_1$ is grounded,$\bar{A}_2$ is +Vcc and B_2 is high, B_1 is low to high	D	None of these
136	A digital instument is used to measure analog voltage and display in it 7 segment display devices. The instrument has			
	A	An ADC at the input and a DAC at the output	B	An ADC at the input
	C	A DAC at the input	D	An ADC at the output
137	Sample and hold circuit is used in			
	A	ADC	B	DAC
	C	ADC and DAC	D	None of these
138	The minimum number of resistances are required for a 8-bit weighted-resistor type DAC is			
	A	8	B	8
	C	15	D	16
139	In a 8-bit weighted resistor type DAC, the resistance value corresponding to MSB is 1KΩ. The resistance value for LSB will be			
	A	16K	B	32K
	C	64K	D	256K
140	The resolution of a D/A converter is 0.4% of full scale rannge. It is a			
	A	8 bit converter	B	10 bit converter
	C	12 bit converter	D	16 bit converter
141	The input resistance of an R-2R ladder D/A converter is			
	A	R for each digital input	B	2R for each digital input
	C	3R for each digital input	D	None of these

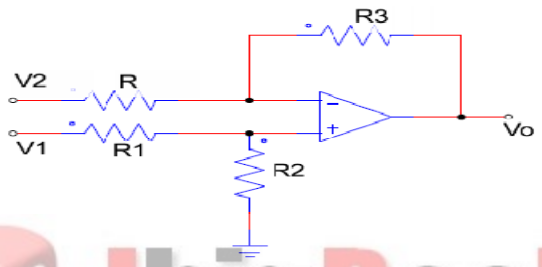
142	A D/A converter's full scale output voltage is 10V and it's accuracy is +0.4%. The maximum error of DAC will be			
	A	20mV	B	30mV
	C	40mV	D	None of these
143	Dynamic characteristics of DAC is			
	A	Dynamic nonlinearity(DNL)	B	Gain over
	C	Offset error	D	Conversion speed
144	The speed of conversion is maximum in			
	A	Successive approximation ADC	B	Flash ADC
	C	Single slop serial ADC	D	Dual slope ADC
145	An A/D converter consists of			
	A	Only a DAC	B	A DAC and a counter
	C	DAC,comparator, logic gates and a counter	D	DAC and logic gates
146	In a 4-bit ADC,the full-scale analog input voltage 16V is divided into			
	A	Sixteen equal intervals	B	Fifteen intervals
	C	Eight intervals	D	None of these
147	The aquantisation error of a 3 bit ADC is			
	A	0	B	V/7
	C	V/14	D	V
148	A 12-bit A/D converter has the input voltage signal from 0V to +10V. The voltage equivalent to LSB will be			
	A	0	B	1.2mV
	C	2.4mV	D	0.833V
149	The number of comparators used in 3 bit parallel converter is			
	A	7	B	8
	C	6	D	None of these
150	An offset voltage 0.5LSB is added to the sucessive approximation ADC			
	A	Improve the conversion speed	B	Increase accuracy
	C	Reduce the maximam quantisation error	D	None of these
151	The cutoff frequency of an op-amp equals the unity-gain frequency divided by			

	A	The cutoff frequency	B	Closed-loop voltage
	C	Unity	D	Common-mode voltage gain
152	When slew rate distortion of a sine wave occurs, the output			
	A	is larger	B	Appears triangular
	C	is normal	D	Has no effect
153	The 741C has			
	A	A voltage gain of 100,000	B	An input impedance of 2MΩ
	C	An output impedance of 75Ω	D	All of these
154	A summing amplifier can have			
	A	Only one input	B	Only two inputs
	C	Only three inputs	D	Anly number of inputs
155	In a scaling adder, the input resistors are			
	A	All of the same value	B	All of different value
	C	Each proportional to the weight of its input	D	Related by a factor of two
156	A comparator with a trip point of zero is sometimes called			
	A	Threshold detector	B	Zero-crossing detector
	C	Positive limit detector	D	Half-wave detector
157	A schmitt trigger			
	A	is a ZCD	B	has two trip inputs
	C	produces triangular output waves	D	is designed to trigger on noise voltage
158	An input transducer converts			
	A	Voltage to current	B	Current to voltage
	C	An electrical quantity to a non-electrical quantity	D	A non-electrical quantity to an electrical quantity
159	A thermistor converts			
	A	Light to resistance	B	Temparature to resistance
	C	Voltage to sound	D	Current to voltage
160	The frequency spectrum of a balanced modulator contains			
	A	A sum frequency	B	A difference frequency

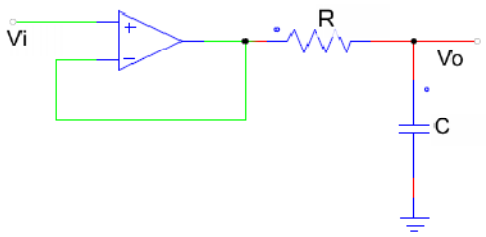
	C	A carrier frequency	D	A an B
161	The equivalent weight of the LSB in a 4-bit variable resistive divider D/A converter is			
	A	(1/4)	B	(1/16)
	C	(1/15)	D	(1/32)
162	For a 4-bit resistive divider (0=0V, 1=+10V) the analog output voltage for a digital input of 1101 is			
	A	(22/3)V	B	13V
	C	(26/3)V	D	11.01V
163	A 4-bit resistive divider D/A converter uses an 80kΩ resistor's MSB, The resistor value for LSB is			
	A	160kΩ	B	40kΩ
	C	20kΩ	D	10kΩ
164	For a 5-bit resistive divider network, the weight assigned to MSB is			
	A	(1/31)	B	(1/32)
	C	(8/31)	D	(16/32)
165	In a binary R/2R ladder D/A converter, the input resistance for each input is			
	A	R	B	2R
	C	3R	D	4R
166	The percentage resolution of a 10-bit A/D converter is nearly			
	A	1%	B	0.01%
	C	0.10%	D	10%
167	A transresistance amplifier is one which has			
	A	Input current I and output voltage V	B	Input voltage V and output current I
	C	Input voltage V_1 and output voltage Vo	D	Input current I_{in} and output current Io
168	The other name of voltage follower is			
	A	Differential amplifier	B	Inverting amplifier
	C	Non-inverting amplifier	D	Unity-gain amplifier

169	Find Vo 			
	A	(-Rf/R1V1)	B	(-Rf/R1V1) - (Rf/R2)
	C	(-RfV1/R1) - (Rf*(-15)/R2)	D	(-Rf/R2V1)
170	The differential mode and common mode voltage is defined as			
	A	Vdm=V2-V1 , Vcm=V1+V2/2	B	Vdm=V1+V2/2 , Vcm=V2-V1
	C	Vdm=V1/2=V2/2 , Vcm=V2-V1/2	D	None of these
171	For the op-amp shown in fig. ,the output will be 			
	A	(-2x)	B	(-5x)
	C	(-12x)	D	(-720x)
172	For which values of Rf and Ri, the output/input ratio of the amplifier shown in fig. will be the least? 			
	A	Rf=100kΩ , Ri=10kΩ	B	Rf=800kΩ , Ri=200kΩ
	C	Rf=1000kΩ , Ri=10kΩ	D	Rf=10kΩ , Ri=1kΩ

173	In the circuit shown below, the feedback factor will be 			
	A	(1/3)	B	(2/7)
	C	(3/7)	D	(1/7)
174	The circuit shown represents 			
	A	Differentitor	B	Adder
	C	Multiplier	D	Sign reversal
175	The circuit shown represents 			
	A	I-to-V converter	B	Differentitor
	C	Log amplifier	D	Analog invertere
176	An integrator is mostly preffered over a differentiator because of 			

	A	More stebility	B	Less voltage drift
	C	Less noise	D	All of above
177	A µA 741C op-amp is used in the circuit, the output voltage for the ideal op-amp will be			
	A	(-5)V	B	(-3)V
	C	(-2.5)V	D	(-2)V
178	A system is critically damped. Now if the gain of the system is increased , the system will behave as			
	A	Over-damped	B	Under-damped
	C	Oscillatory	D	Critically difined
179	For the below circuit, find CMRR ($R_3/R \neq R_2/R_1$) 			
	A	$(R_3(R_1+R_2)+R_2(R+R_3))/(R_3(R_1+R_2)+R_1(R+R_3))$	B	$(R_3(R_1+R_2)+R_2(R+R_3))/(R+R_3)$
	C	$(R_3(R_1+R_2)+R_2(R+R_3))/(R_3(R_1+R_2)-R_1(R+R_3))$	D	$(R_3(R_1+R_2))/(R_3(R_1+R_2)+R_1(R_1+R_3))$
180	For large CMRR, A_{cm} should be			
	A	As large as possible	B	As small as possible
	C	Zero	D	Level to A_{dm}
181	MOSFET op-amp is preffered over BJT and FET because of			
	A	High input resistance $10^{12}\,\Omega$	B	Low input current, 1PA
	C	High slew rate, 10 V/µsec	D	All the above
182	DC characters of op-amp are			
	A	Input bias and offset current	B	Input offset voltage
	C	Thermal Drift	D	All of the above
183	The slew rate of op-amp is defined as			
	A	*dvc/dt*	B	$dvc/dt\,|_{max}$

	C	I_{max} / C	D	None of the above
184	The relation between slew rates, frequency is given by			
	A	$f_{max} = SR / 6.2 * V_m$	B	$f_{max} = V_n / S.R * 6.2$
	C	$f_{max} = V_n * 6.2/SR$	D	$f_{max} = SR/V_n$, SR- slew rate
185	The function of window detector is			
	A	To find unknown input between two threshold levels	B	To find unknown itput at one thereshold voltage
	C	Without threshold voltages input is detected	D	None of the above
186	The VCO is otherwise called as			
	A	Free-running multivibrator	B	Monostable multivibrator
	C	Bistable	D	None of the above
187	IC PLL 565 is called			
	A	PLL	B	Monolithic PLL
	C	VCO	D	Phase detector
188	Select correct statement of PLL.			
	A	Capture range smaller than lock range	B	Lock range smaller than capture range
	C	Capture range smaller equal to lock range	D	None of the above
189	Non-linearity due to power disspation in DAC can be avoided by			
	A	Weighted resistor method	B	R-2R method
	C	Inverted R-2R method	D	None of the above
189	ADC 0800/0801/0802 are			
	A	8-bit ADC	B	6-bit ADC
	C	4-bit ADC	D	None of the above
190	A V/F convertor circuit is used in			
	A	Charge-balancing ADC	B	Dual slope ADC
	C	Parallel comparators	D	Successive-approximation ADC
191	The S/H circuit is not needed for_____ADC.			
	A	Direct type	B	Counter type
	C	Integrating type	D	None of the above

192	Calculate trigger points if supply voltage $V = \pm 12V$. Plot the output voltage V_0 versus t if V_i is 100			
	A	3.686 V, - 3.686 V	B	3.686 V, 1.843 V
	C	(- 1.843 V, 1.843 V)	D	7.24 V, -7.24 V
193	Find the transfer function of the given circuit. 			
	A	*RCS* + 1	B	1/ *RCS* + 1
	C	RCS - 1	D	1/RCS-1
194	The gain of an op-amp decreases at high frequency due to			
	A	Capacitance	B	Resistors
	C	Gain	D	None of the above
195	Military grade op-amp be operated in the temperature range of			
	A	(- 55 to 121^{0}C)	B	(- 50 to 150^{0}C)
	C	0 to 100^{0}C	D	at 30^{0}C
196	Isolation technique is used in IC to			
	A	Isolate device and to prevent short circuit	B	Provide high gain
	C	Increase the area	D	None of the above
197	Switching speed is fast in			
	A	PnP Transistor	B	nPn TV
	C	Schottky transistor	D	None of the above
198	The technique used to produce small-device pattern on silicon wafer is			
	A	Photolithography	B	Oxidation
	C	Diffusion	D	Epitaxy
199	When silicon water is oxidized, the product is			
	A	Oxygen, silicon dioxide	B	Hydrogen, silicon dioxide

	C	Silica only	D	SiO_2 only
200	The meaning of planner technology implies wafers			
	A	Devices fabricated on the surface	B	Cut into piece for different devices
	C	Devices fabricated in depth in to wafer	D	Less thickness wafer being used
201	A zener diode			
	A	Has a high forward voltage rating.	B	Has a sharp breakdown voltage at low reverse voltage
	C	Has a negative resistance.	D	None of this.
202	If the ripple factor of the output wave of a rectifier is low, it means that			
	A	Output voltage will have less ripple.	B	Output voltage will be low.
	C	Filter circuits may be required.	D	None of this.
203	A half wave rectifier circuit with capacitive filter is connected to 200V,50 HZ ac line the output voltage across the capacitor should be approximately			
	A	100V	B	180V
	C	280V	D	400V
204	The colour band sequence of a resistor is Yellow, Violet, Orange and Gold. The range inwhich its value must lie so as to satisfy the tolerance specified is between			
	A	44.66KW and 49.35 KW	B	44.65 KW and 49.35 KW
	C	44.65KW and 49.36 KW	D	45 KW and 49.34 KW
205	The translator program that converts source code in high level language into machine code line by line is called			
	A	Assembler	B	Compiler
	C	loader	D	interpreter
206	The threshold voltage of an n-channel MOSFET can be increased by			
	A.	increasing the channel doping concentration	**B.**	reducing the channel length
	C.	reducing gate oxide thickness	**D.**	decreasing the channel doping concentration
207	Thermal runaway is not possible in FET because as the temperature of FET increases			
	A.	the mobility decreases	**B.**	the transconductance increases
	C.	the drain current increase	**D.**	the transconductance decreases
208	The type of power amplifier which exhibits crossover distortion in its output is			
	A.	Class A	**B.**	Class B
	C.	Class AB	**D.**	Class C

209	The gain bandwidth product of a two stage CE amplifier is			
	A.	the same as that of one stage	**B.**	greater than that of one stage
	C.	less than that of one stage	**D.**	the product of the two gain bandwidth products of each stage
210	Class AB amplifier is often used in power(large signal) amplifiers in order to			
	A.	get maximum efficiency	**B.**	remove even harmonics
	C.	overcome a cross-over distortion	**D.**	reduce collector dissipation
211	In a common emitter amplifier, unbiased emitter resistance provides			
	A.	voltage-shunt feedback	**B.**	current-series feed back
	C.	negative voltage feed back	**D.**	positive current feed back
212	Op-amp used as a tuned amplifier has the tuned circuit connected			
	A.	across input	**B.**	across series impedance at the input
	C.	across feed-back impedance Zf	**D.**	across output
213	How many flip-flops are required to build a binary counter circuit to count from 0 to 1023			
	A.	1	**B.**	6
	C.	10	**D.**	24
214	Which one of the following can be used to change data from special code to temporal code?			
	A.	shift registers	**B.**	counters
	C.	A/D converter	**D.**	Combinational circuits
215	Which one of the following is not a vectored interrupt for 8085 microprocessor?			
	A.	TRAP	**B.**	INTR
	C.	RST 7.5	**D.**	RST3
216	The number of comparators in a parallel conversion type 8 -bit A to D converter is			
	A.	8	**B.**	16
	C.	255	**D.**	256
217	A Schottkey diode is a			
	A.	majority carrier device	**B.**	minority carrier device
	C.	fast recovery diode	**D.**	both a majority and a minority carrier diode
	Optocouplers combine			

218	**A.**	SIT and BJTS	**B.**	IGBTS and MOSFETS
	C.	Diode and BJT	**D.**	Infrared LED and a silicon photo transistor.
219	In microprocessor architecture, flag indicates the			
	A.	bit-size of the microprocessor	**B.**	internal status of the central processing unit
	C.	number of microprocessor	**D.**	None of the above
220	How many two input AND gates and two input OR gates are required to realize Y = BD+CE+AB			
	A.	1, 1	**B.**	4, 2
	C.	3, 2	**D.**	2, 3
221	Which of the following transistor amplifier configuration has the highest power gain			
	A	comman base	B	comman collector
	C	comman emitter	D	none of above
222	The information in ROM is stored			
	A	By the user any number of times.	B	By the manufacturer during fabrication of the device
	C	By the user using ultraviolet light.	D	By the user once and only once.
223	In the context of IC fabrication, metallization means			
	A	Connecting metallic wires.	B	Forming interconnecting conduction pattern and bonding pads
	C	Depositing Sio2 layer.	D	Covering with a metallic cap.
224	A major advantage of an emitter follower is that is provides			
	A	maximum gain	B	maximum efficiency
	C	maximum output impedance	D	minimum distortion
225	An eight stage ripple counter uses a flip-flop with propagation delay of 75 nanoseconds. The pulse width of the strobe is 50ns. The frequency of the input signal which can be used forproper operation of the counter is approximately			
	A	1 MHz	B	500 MHz.
	C	2 MHz.	D	4 MHz
226	Scratch – Pad memory is a			
	A	first in first out memory	B	Local permanent memory
	C	local temporary memory	D	last in first in memory
	The output of a JK flipflop with asynchronous preset and clear inputs is '1'. The output can be changed to '0' with one of the following conditions.			

227	A	By applying J = 0, K = 0 and using a clock.	B	By applying J = 1, K = 0 and using the clock.
	C	By applying J = 1, K = 1 and using the clock.	D	By applying a synchronous preset input.
228	The ripple frequency in case of a full wave rectifier is			
	A	Twice the supply frequency	B	equal to the supply frequency
	C	thrice the supply frequency	D	None of these
229	BURST refresh in DRAM is also called as			
	A	Concentrated Refresh	B	Distributed Refresh
	C	Hidden Refresh	D	None
230	Stack pointer is a register which comes into use			
	A	whenever a data is read from the memory	B	whenever a data is written into the memory
	C	whenever the output variable is sent out of the CPU	D	whenever an interrupt or high priority call comes from external device
231	A weighted resistor digital to analog converter using N bits requires a total of			
	A	N precision resistors	B	2N precision resistors.
	C	N + 1 precision resistors	D	N – 1 precision resistors.
232	Which of the following classes has lowest efficiency?			
	A	Class A	B	Class B
	C	Class AB	D	Class C
233	The early effect in a bipolar junction transistor is caused by			
	A	fast turn-on	B	fast turn-off
	C	large collector-base reverse bias	D	large emitter-base forward bias
234	MOSFET can be used as a			
	A	current controlled capacitor	B	voltage controlled capacitor
	C	current controlled inductor	D	voltage controlled inductors
235	Thermal runaway is not possible in FET because as the temperature of FET increases			
	A	the mobility decreases	B	the transconductance increases
	C	the drain current increases	D	none of the above
	A source follower using an FET usually has a voltage gain which is			
	A	greater than +100	B	slightly less than unity but positive

236	C	exactly unity but negative	D	about -10
237	A differential amplifier has a differential gain of 20,000. CMRR=80 dB. The common mode gain is given by			
	A	2	B	1
	C	0.5	D	0
238	The approximate input impedance of the OPAMP circuit which has Ri=10k,Rf=100k,RL=10k			
	A	∞	B	120k
	C	110k	D	10k
239	An OPAMP has a slew rate of 5 V/µ S .The largest sine wave O/P voltage possible at a frequency of 1MHZ is			
	A	10 volts	B	5 volts
	C	5/3 volts	D	5/2 volts
240	A change in the value of the emitter resistance Re in a differential amplifier			
	A	affects the difference mode gain Ad	B	affects the common mode gain Ac
	C	affects both Ad and Ac	D	does not effect either Ad and Ac
241	A differential amplifier is invariably used in the i/p stage of all OP-AMPs.This is domebasically to provide the OP-AMPs with a very high			
	A	CMRR	B	bandwidth
	C	slew rate	D	open-loop gain
242	The effective channel length of a MOSFET in a saturation decreases with increase in			
	A	gate voltage	B	drain voltage
	C	source voltage	D	body voltage
243	Which of the following is not associated with a p-n junction			
	A	junction capacitance	B	charge storage capacitance
	C	depletion capacitance	D	channel length modulation
244	In a p-n junction diode under reverse bias , the magnitude of electric field is maximum at			
	A	the edge of the depletion region on the p-side	B	the edge of the depletion region on the n-side
	C	the p-n junction	D	the center of the depletion region on the n-side
	An n- channel JFET has IDSS=2mA,and Vp=-4v.Its transconductance gm=(in mA/V)for anapplied gate to source voltage VGS=-2v is			
	A	0.25	B	0.5

245	C	0.75	D	1
246	In a common emitter, unbypassed resister provides			
	A	voltage shunt feedback	B	current series feedback
	C	negative voltage feedback	D	positive current feedback
247	A constant current signal across a parallel RLC circuits gives an o/p of 1.4v at the signalfrequency of 2.89KHZ and 4.1KHZ. At the frequency of 4KHZ the o/p voltage will be			
	A	1v	B	2v
	C	1.4v	D	2.8v
248	Class AB operation is often used in power (large signal) amplifiers in order to			
	A	get maximum efficiency	B	remove even harmonics
	C	overcome a crossover distortion	D	reducing collector dissipation
249	The bandwidth of an RF tuned amplifier is dependent on			
	A	Q –factor of the tuned o/p circuit	B	Q –factor of the tuned i/p circuit
	C	Quiescent operating point	D	Q-factor of the o/p and i/p circuits as well as quiescent operating point
250	The MOSFET switch in its on-state may be considered equivalent to			
	A	resistor	B	inductor
	C	capacitor	D	battery
251	Most of the linear ICs are based on the two-transistor differential amplifier because of its			
	A	I/P voltage dependent linear transfer Characteristic	B	high voltage gain
	C	high input resistance	D	high CMRR
252	Negative feedback in an amplifier			
	A	Reduces gain	B	Increase frequency &phase distortion
	C	Reduces bandwidth	D	Increases noise
253	A dc power supply has no-load voltage of 30v,and a full-load voltage of 25v at full-loadcurrent of 1A.Its output resistance & load regulation ,respectively are			
	A	5 Ω & 20 %	B	25 Ω & 20 %
	C	5 Ω & 16.7 %	D	25 Ω & 16.7 %
254	The current gain of a bipolar transistor drops at high frequencies because of			
	A	Transistor capacitances	B	High current effects in the base
	C	Parasitic inductive elements	D	The early effect

255	The ideal OP-AMP has the following characteristics.			
	A	Ri=∞ ,A=∞ ,R0=0	B	Ri=0 ,A=∞ ,R0=0
	C	Ri=∞ ,A=∞ ,R0=∞	D	Ri=0 ,A=∞ ,R0=∞
256	An npn BJT has gm= 38mA/v, cμ =10^{-14} F, cπ =10^{-13}F and DC current gain β0=90.For thistransistor fT& fβ			
	A	fT =1.64 x 10^{8} Hz & fβ = 1.47 x 10^{10} Hz.	B	fT =1.47 x 10^{10} Hz & fβ = 1.64 x 10^{8} Hz
	C	fT =1.33 x 10^{12} Hz & fβ = 1.47 x 10^{10} Hz	D	fT =1.47 x 10^{10} Hz & fβ = 1.33 x 10^{12} Hz
257	A 741-type OP-AMP has a gain-bandwidth product of 1MHz.A non-inverting amplifierusing this opamp& having a voltage gain of 20db will exhibit -3db bandwidth of			
	A	50 KHz	B	100KHz
	C	1000/17 KHz	D	1000/7.07 KHz
258	An amplifier using an opamp with slew rate SR=1v/μsec has a gain of 40db.if this amplifierhas to faithfully amplify sinusoidal signals from dc to 20 KHz without introducing any slew-rateinduced distortion, then the input signal level must not exceed			
	A	795mV	B	395mV
	C	795 mV	D	39.5mV
259	In the differential voltage gain & the common mode voltage gain of a differential amplifierare 48db &2db respectively, then its common mode rejection ratio is			
	A	23dB	B	25dB
	C	46dB	D	50dB
260	Generally, the gain of a transistor amplifier falls at high frequencies due to the			
	A	Internal Capacitance of the device	B	Coupling capacitor at the input
	C	Skin effect	D	Coupling capacitor at the output
261	An amplifier without feedback has a voltage gain of 50, input resistance of 1 KΩ & Outputresistance of 2.5KΩ.The input resistance of the current-shunt negative feedback amplifier using			
	A	1/11KΩ	B	1/5KΩ
	C	5KΩ	D	11KΩ
262	The action of JFET in its equivalent circuit can best be represented as a			
	A	Current controlled Current source	B	Current controlled voltage source
	C	Voltage controlled voltage source	D	voltage controlled current source
	Three identical amplifiers with each one having a voltage gain of 50,input resistance of 1KΩ& output resistance of 250, are cascaded.The open circuit voltage gain of combined amplifieris			

263	A	49dB	B	51dB
	C	98dB	D	102dB
264	An ideal OP-AMP is an ideal			
	A	Current controlled Current source	B	Current controlled voltage source
	C	Voltage controlled voltage source	D	voltage controlled current source
265	In a full-wave rectifier using two ideal diodes,Vdc&Vm are the dc & peak values of thevoltage respectively across a resistive load. If PIV is the peak inverse voltage of the diode, thenthe appropriate relationships for this rectifier is.			
	A	Vdc = Vm/π, PIV=2Vm	B	Vdc = 2Vm/π, PIV=2vm
	C	Vdc = 2Vm/π, PIV=Vm	D	Vdc = Vm/π, PIV=Vm
266	The cascade amplifier is a multistage configuration of			
	A	CC-CB	B	CE-CB
	C	CB-CC	D	CE-CC
267	The most commonly used amplifier in sample & hold circuits is			
	A	A unity gain non-inverting amplifier	B	A unity gain inverting amplifier
	C	An inverting amplifier with a gain of 10	D	An inverting amplifiers with a gain of 100
268	The following components are all active components			
	A	a resistor and an inductor	B	a diode, a BJT and an FET.
	C	a capacitor, and an inductor	D	an Op amp , a BJT and thermionic triode
269	Introducing a resistor in the emitter of a common amplifier stabilizes the dc operating pointagainst variations in			
	A	Only the temperature	B	only the β of the transistor
	C	Both Temperature & β	D	None of the above
270	Which of following are known as universal gates			
	A	NAND & NOR	B	AND & OR
	C	XOR & OR	D	None
271	In forward mode NPN BJT, if we increase the voltage VCC , the collector current increases			
	A	due to ohm's law, higher VCC causes higher current	B	due to base width decrease less carrier recombine in the base region.
	C	as the gradient of minority carriers in the base region becomes steeper	D	due to both the reasons B and C

272	An emitter follower has high input impedance because			
	A	large emitter resistance is used	B	large biasing resistance is used.
	C	there is negative feedback in the base emitter circuit	D	the emitter-base junction is highly reverse biased
273	In a differential amplifier an ideal CMRR is			
	A	infinity	B	Zero
	C	–1.	D	1
274	The main reason why electrons can tunnel through a P-N junction is that			
	A	They have high energy.	B	Barrier potential is very low
	C	Depletion layer is extremely thin.	D	Impurity level is low.
275	FET is advantageous in comparison with BJT because of			
	A	high input impedance	B	high gain-bandwidth product
	C	its current controlled behaviour	D	high noise immunity.
276	The emission of electrons in a vacuum diode is achieved by			
	A	Electrostatic field	B	Magnetic field.
	C	Heating.	D	electron bombardment
277	An intrinsic semiconductor at absolute zero temperature			
	A	has a large no. of holes.	B	Behaves like an insulator.
	C	behaves like a metallic conductor	D	has few holes and same number of electrons.
278	The current flow through a Ge PN junction diode with a forward bias of 0.22 Volt and a reverse saturation current of 1 mA at 25° C is nearly			
	A	6.3 A	B	5.22 A
	C	4 mA	D	5.1 mA
279	For the operation of a depletion-type N-MOSFET, the gate voltage has to be			
	A	low positive	B	high positive
	C	high negative	D	Zero
280	The typical operating voltage for LED's ranges from			
	A	0.2 V to 0.6 V.	B	6 V to 10 V
	C	1.5 V to 2.5 V	D	9 V to 10 V
281	In a Zener diode large reverse current is due to			
	A	Collision.	B	Presence of impurities.
	C	rupture of bonds	D	lower resistance in reverse biased region.

282	Ripple factor of a full-wave rectifier without filter will be			
	A	0.2.	B	0.48.
	C	0.24	D	1.21
283	JFET has main drawback of			
	A	having low input impedance	B	having high output impedance
	C	being noisy.	D	Having small gain-bandwidth product.
284	The CE configuration amplifier circuits are preferred over CB configuration amplifier circuitsbecause they have			
	A	lower amplification factor.	B	Larger amplification factor.
	C	high input resistance and low output resistance	D	none of these.
285	A device whose characteristics are very close to that of an ideal current source is			
	A	a gas diode	B	a BJT in CB mode
	C	a BJT in CE mode	D	a triode.
286	In an N-type semiconductor, the concentration of minority carriers mainly depends upon			
	A	the doping technique	B	the number of donor atoms.
	C	the temperature of the material	D	the quality of the intrinsic material,
287	When forward bias is applied to a junction diode, it			
	A	increases the potential barrier	B	decreases the potential barrier.
	C	reduces the majority-carrier current to zero.	D	reduces the minority-carrier current to zero.
288	The theoretical maximum efficiency of a Bridge rectifier circuit is			
	A	48.2%.	B	81.2%.
	C	82%	D	40.6%.
289	The input resistance of a common-collector configuration will be of the order of			
	A	Approx. 90KW	B	Approx. 60KW
	C	Approx. 150KW	D	300KW and above
290	A switching voltage regulator can be of the following type:			
	A	step-down	B	step-up
	C	inverting	D	none of these
	Doping materials are called impurities because they			
	A	Decrease the number of charge carriers.	B	Change the chemical properties of semiconductors

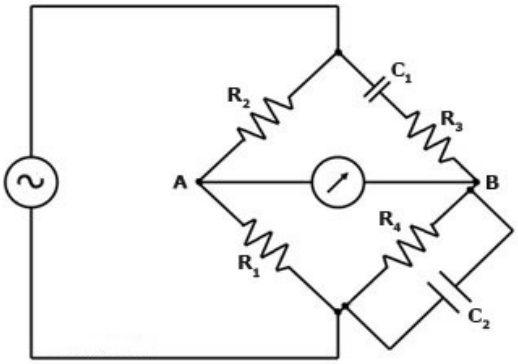
291	C	Make semiconductors less than 100 percent pure	D	Alter the crystal structures of the pure semiconductors
292	Avalanche breakdown is primarily dependent on the phenomenon of			
	A	Collision	B	Doping
	C	Ionization	D	Recombination
293	In a rectifier, larger the value of shunt capacitor filter			
	A	Larger the peak-to-peak value of ripple voltage	B	Larger the peak current in the rectifying diode.
	C	Longer the time that current pulse flows through the diode	D	Smaller the dc voltage across the load.
294	If a change in base current does not change the collector current, the transistor amplifier is saidto be			
	A	Saturated	B	Cut-off.
	C	Critical.	D	Complemented.
295	The extremely high input impedance of a MOSFET is primarily due to the			
	A	Absence of its channel.	B	Negative gate-source voltage.
	C	Depletion of current carriers	D	Extremely small leakage current of its gate capacitor.
296	The forbidden energy gap in semiconductors			
	A	lies just below the valance band	B	lies just above the conduction band
	C	lies between the valence band and the conduction band	D	is the same as the valence band
297	The barrier potential for a Ge PN junction is			
	A	0.6V.	B	0.3V.
	C	0.1V	D	0.5V.
298	The ripple factor of a power supply is a measure of			
	A	its voltage regulation	B	its diode rating
	C	purity of power output	D	its filter efficiency.
299	In a BJT, if the emitter junction is reverse-biased and the collector junction is reverse-biased, itis said to operate in			
	A	in active region	B	in saturation region
	C	in cut-off region	D	none of the above
300	With increasing temperature, the resistivity of an intrinsic semiconductor decreases. This isbecause, with the increase of temperature			
	A	The carrier concentration increases but the mobility of carriers decreases	B	Both the carrier concentration and mobility of carriers decreases
	C	The carrier concentration decreases, but the mobility of carriers increases	D	The carrier concentration remains the same but the mobility of carriers decreases

301	At room temperature of 25ºC, the barrier Potential for Silicon is 0.7V. Its value at 0ºC will be			
	A	0.7 V	B	0.65 V
	C	0.75 V	D	0.55 V.
302	Which of the following is a unipolar device?			
	A	P-N junction diode	B	Zener diode
	C	Tunnel diode	D	Schottky diode
303	On applying a Positive voltage signal to the base of a normally biased N-P-N CE transistoramplifier			
	A	Base current will fall.	B	Collector current will fall.
	C	Emitter current will fall.	D	Collector voltage will become less positive.
304	An N-channel JFET has Pinch-off Voltage of VP = – 4V and given that VGS = –1V,then the minimum VDS for the device to operate in the Pinch-off region will be			
	A	+1V	B	+3V
	C	+4V	D	+5V
305	Acesstime is faster for			
	A	ROM	B	SRAM
	C	DRAM	D	EPROM
306	What is the binary equivalent of the decimal number 368			
	A	101110000	B	110110000
	C	111010000	D	111100000
307	The NAND gate output will be low if the two inputs are			
	A	0	B	1
	C	10	D	11
308	The decimal equivalent of hex number 1A53 is			
	A	6793	B	6739
	C	6973	D	6379
309	The digital logic family which has the lowest propagation delay time is			
	A	ECL	B	TTL
	C	CMOS	D	PMOS
	The device which changes from serial data to parallel data is			
	A	COUNTER	B	MULTIPLEXER

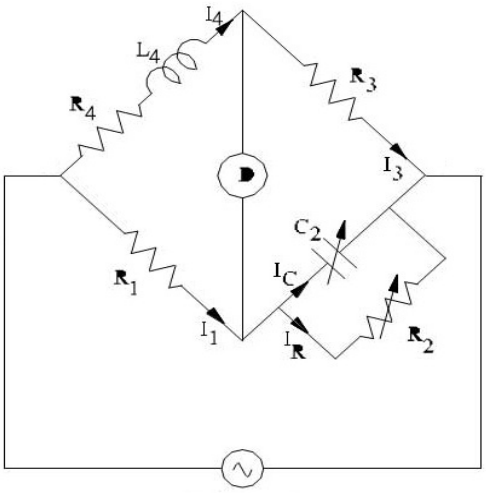
310	C	DEMULTIPLEXER	D	FLIP-FLOP
311	The number of control lines for a 8 – to – 1 multiplexer is			
	A	2	B	3
	C	4	D	5
312	How many Flip-Flops are required for mod–16 counter?			
	A	5	B	6
	C	3	D	4
313	EPROM contents can be erased by exposing it to			
	A	Ultraviolet rays	B	Infrared rays.
	C	Burst of microwaves	D	Intense heat radiations
314	The hexadecimal number 'A0' has the decimal value equivalent to			
	A	80	B	256
	C	100	D	160
315	The Gray code for decimal number 6 is equivalent to			
	A	1100	B	1001
	C	101	D	110
316	In a JK Flip-Flop, toggle means			
	A	Set Q = 1 and Q = 0.	B	Set Q = 0 and Q = 1
	C	Change the output to the opposite state.	D	No change in output.
317	The digital logic family which has minimum power dissipation is			
	A	TTL	B	RTL
	C	DTL	D	CMOS
318	The output of a logic gate is 1 when all its inputs are at logic 0. the gate is either			
	A	a NAND or an EX-OR	B	an OR or an EX-NOR
	C	an AND or an EX-OR	D	a NOR or an EX-NOR
319	Data can be changed from special code to temporal code by using			
	A	Shift registers	B	counters
	C	Combinational circuits	D	A/D converters
	A ring counter consisting of five Flip-Flops will have			
	A	5 states	B	10 states

320	C	32 states	D	Infinite states.
321	What does mp speed depends on			
	A	Clock	B	Data bus width
	C	Address bus width	D	Size of register
322	The 2's complement of the number 1101101 is			
	A	101110	B	111110
	C	110010	D	10011
323	The correction tobe applied in decimal adder to the generated sumis			
	A	101	B	110
	C	1101	D	1010
324	When simplified with Boolean Algebra (x + y)(x + z) simplifies to			
	A	x	B	x + x(y + z)
	C	x(1 + yz)	D	x + yz
325	The gates required to build a half adder are			
	A	EX-OR gate and NOR gate	B	EX-OR gate and OR gate
	C	EX-OR gate and AND gate	D	Four NAND gates.
326	The code where all successive numbers differ from their preceding number by single bit is			
	A	Binary code	B	BCD
	C	Excess – 3	D	Gray.
327	Which of the following is the fastest logic			
	A	TTL	B	ECL
	C	CMOS	D	LSI
328	Which of the memory is volatile memory			
	A	ROM	B	RAM
	C	PROM	D	EEPROM
329	DeMorgan's first theorem shows the equivalence of			
	A	OR gate and Exclusive OR gate.	B	NOR gate and Bubbled AND gate.
	C	NOR gate and NAND gate.	D	NAND gate and NOT gate
	Which stack in 8085?			
	A	FIFO	B	LIFO

330	C	FILO	D	LILO
331	In 8085,example for non maskable interrupts are			
	A	TRAP	B	RST 6.5
	C	INTR	D	RST 5.5
332	A device which converts BCD to Seven Segment is called			
	A	Encoder	B	Decoder
	C	Multiplexer	D	De multiplexer
333	Which interrupts has highest Priority			
	A	INTR	B	TRAP
	C	RST 7.5	D	RST6.5
334	The access time of ROM using bipolar transistors is about			
	A	1 sec	B	1 msec
	C	1 µsec	D	1 nsec
335	In 8085 name the 16 bit registers			
	A	Stack Pointer	B	Program Counter
	C	IR	D	A and B
336	Which of the following is a hardware interrupt			
	A	RST 5.5 ,RST 6.5 ,RST 7.5	B	INTR ,TRAP
	C	TRAP	D	A and B
337	The advantage of memory mapped i/o over i/o mapped i/o is			
	A	Faster	B	Many instructions supporting memory mapped i/o
	C	Require a bigger adress decoder	D	All of the above
338	In8085 are of the following statements is not true			
	A	Co-processor is interfaced in max mode.	B	Co-processor is interfaced in MIN mode
	C	Co-processor is interfaced in max/min mode	D	Supports pipelining
339	How many select lines will a 32:1 multiplexer will have			
	A	5	B	8
	C	9	D	11

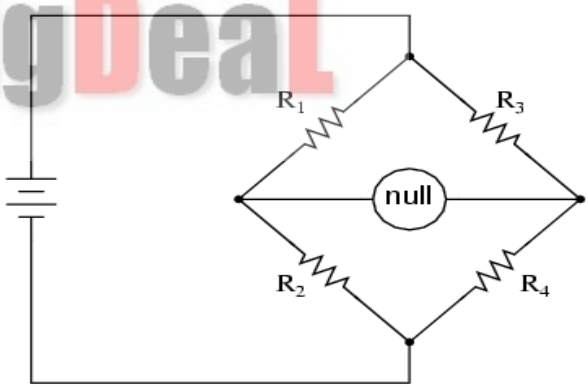
1	The given figure shows wein bridge connection for frequency measurement. C and R are variables and ganged together. For balanced condition the expression for frequency is f= 1/(2πCR) when (Assume that R3=R4 and C1=C2) 			
	A	$R_1=R_2$	B	$R_1=2R_2$
	C	$R_1=R_2/2$	D	$R_1=3R_2$
2	Piezoelectric accelerometers			
	A	Should not be used for high frequencies above 100Hz	B	Should be used for low frequencies
	C	Should be used a monitoring source of low input impedance	D	Have a low natural frequency
3	The insulation resistance of a transformer winding can be easily measured with			
	A	Wheatstone bridge	B	Megger
	C	Kelvin bridge	D	Voltmeter
4	The meter constant of a single-phase 240 V induction watthour meter is 400 revolutions per kWh. The speed of the meter disc for a current of 10 amperes of 0.8 p.f. lagging will be			
	A	12.8 rpm	B	16.02 rpm
	C	18.2 rpm	D	21.1 rpm
5	Dummy strain gauges are used for			
	A	Compensation of temperature changes	B	Increasing the sensitivity of bridge in which they are included
	C	Compensating for different expansion	D	Calibration of strain gauges
6	In the Maxwell bridge as shown in the figure below,the values of resistance R4 and inductance L4 of a coil are to be calculated after balancing the bridge.The component values are shown in the figure at			

balance. The value of Rx and Lx will respectively be (It is given that R1=750 Ω, R2= 4000 Ω, R3= 2000 Ω and C2 =0.05 pF)



A	375 ohm , 75 mH	B	75 ohm, 150 mH
C	37.5ohm, 75mH	D	75 ohm , 75 mH

7 In the bridge given in the figure, the reading of the high impedance voltmeter is
(It is given that R1=20 Ω , R2 = 10 Ω , R3 = 10 Ω and R4=20 Ω)
The supply voltage is 10 V.



A	zero	B	6.66 V
C	4.20 V	D	3.33 V

8 The coils having self-inductance of 10 mH and 15 mH have an effective inductance of 40 mH when connected in series aiding.What will be the equivalent inductance if we connect them in series-

A	20 mH	B	10 mH
C	5 mH	D	zero

9 A universal bridge uses

A	Maxwell's bridge configuration for the measurement of inductance and	B	Maxwell's wein bridge configuration for the measurement of inductance and modified De'sauty's

	C	Maxwell's wein bridge configuration for the measurement of inductance and	D	Any of the above
10	The scale of a 0-500 V voltmeter is divided into ten large divisions representing 50 V each large division a further subdivision into 10 small division, each representing 5 V. It is used for measurement of output voltage of a potentiometer which can be varied from 0 to 500 V . It is observed that when the sliding contact moved from its zero position, there is no perceptible movement of pointer of the			
	A	Threshold of the voltmeter is 5 V	B	Resolution of the voltmeter is 5 V
	C	Sensitivity of the voltmeter is 5 V	D	None of these
11	A unknown resistance is measured by substitution method. First a standard known resistance of 100 Ω is connected in series with a circuit having a rheostat and a galvanometer . The battery voltage is 10 V and the setting of the rheostat is 500 Ω and the galvanometer shows a deflection of 600 After this test, the bettery voltage goes down to 9 V and when the unknown resistance is substituted for the known resistance, the galvanometer again shows a deflection of 600 ith the same setting of the			
	A	100 Ω	B	54 Ω
	C	90 Ω	D	None of these
12	Equal resistances of 100 Ω each are connected in each arm of a Wheatstone bridge which is supplied by a 2 V battery source . The galvanometer of negligible resistance connected to the bridge can sense as low current as 1 μA. The smallest value of resistance that can be measured is			
	A	20 mΩ	B	2 μΩ
	C	20 μΩ	D	None of these
13	A metal has strain gauge factor of two. Its nominal resistance is 120 ohms. If it undergoes a strain of 10^{-5}, the value of change of resistance in response to the strain is			
	A	240 ohms	B	2×10^{-5} ohms
	C	2.4×10^{-3} ohms	D	1.2×10^{-3} ohms
14	A wattmeter is reading back-wards in an experiment. Upscale reading can be obtained by reversing			
	A	Pressure coil connection only	B	Current coil connection only
	C	Both pressure and current coil connection only	D	Either pressure or current connection
15	A thermistor exhibits			
	A	Only a negative change of resistance with increase in temperature	B	Only a positive change of resistance with increase in temperature

	C	Can exhibits either a negative or positive change of resistance with	D	None of these
16	A 35 V d.c. supply is connected across a combined resistance of 600 ohms and an unknown resistance of R ohms in series. A voltmeter having a resistance of 1.2 kΩ is connected across 600 ohm resistor and reads 5 V. The resistance R will be			
	A	120 ohms	B	500 ohms
	C	1.7 k ohms	D	2.4 kΩ
17	If the practical units of voltage and current wave each made 20 times as large as they are at present,what would be the consequent alteration in the size of the unit of capacitance?			
	A	200 times	B	60 times
	C	20 times	D	Nil
18	A Wheatstone bridge has ratio arms of 1000 Ω and 100 Ω resistance , the standard resistance arms consists 4 decade resistance boxes of 1000,100,10,1 Ω steps. The maximum and minimum values of unknown resistance which can be determined with this set up is			
	A	11110 Ω , 1 Ω	B	111100 Ω , 10 Ω
	C	111100 Ω, 10 Ω	D	None of this
19	A Wheatstone bridge cannot be used for precision measurements because errors are introduced into on account of			
	A	Resistance of connecting leads	B	Thermo-electric emfs
	C	Contact resistances	D	All of these
20	In a Kelvin's Double Bridge, two sets of readings are taken when measuring a low resistance, one with the current in one direction and the other with direction of current reversed. This is done to eliminate			
	A	Contact resistance	B	Resistance of leads
	C	Changes in battery voltage	D	Thermo-electric emfs
21	When a potentiometer is used for measurement of voltage of an unknown source, the power consume in the circuit of the unknown source under null conditions is			
	A	Very high	B	high
	C	small	D	Ideally zero
22	Standardization of potentiometer is done in order that they become			
	A	accurate	B	precise
	C	Accurate and direct reading	D	Accurate and precise

23	A volt-ratio box is designed with a resistances 100 Ω/V. It has input terminals of 300 V, 150 V and 75 V and an output terminal of 1.5 V which is connected to the potentiometer. Supposing a voltage of 270 V is connected to 300 V terminal,what is voltage indicated by the potentiometer and what is the power			
	A	1.5 V , 3 W	B	1.35 V , 3 W
	C	1.5 V , 2.43 W	D	1.35 V , 2.43 W
24	The following are the equation under balance condition for a bridge. The R1 and L1 are the unknown resistance and inductance respectively. In order to achieve converging balance , which one of the follwoing should be chosen as variables $R_1 = R_2 \frac{R_2 R_3}{R_4}$ $L_1 = R_2 R_3 C_4$			
	A	R_2 and R_3	B	R_2 and C_4
	C	R_4 and C_4	D	R_3 and C_4
25	Sensitivity of a potentiometer can be increased by			
	A	Decreasing the length of potentiometer wire	B	Increasing the length of potentiometer wire
	C	Decreasing the current in potentiometer wire	D	Decreasing the resistance in the rheostat in series with the battery
26	A bridge type rectifier meter and a thermo couple meter employ moving-coil movement for indication. Both are calibrated on a 100Hz sinusoidal waveform. If a 100 Hz rectangular waveform is applied to			
	A	02:01	B	1.11 : 1
	C	1.41 : 1	D	1.21 : 1
27	A slide wire potentiometer has 10 wires of 1 m each. With the help of a standard voltage source of 1.018 V it is standardized by keeping the jockey at 101.8 cm . If the resistance of the potentiometer			
	A	0.1 mA	B	0.5 mA
	C	1 mA	D	10 mA
28	In d.c. potentiometer measurements, a second reading in often taken after reversing the polarities of the d.c. supply and the unknown voltage and the average of the two reading is taken. This is with a			
	A	Ripples in the d.c. supply	B	Stray magnetic fields
	C	Stray thermal emf's	D	Erroneous standardisation
29	For full wave rectification , a four diode bridge rectifier is claimed to have the following advantages over a two diode circuit: 1. Less expensive transformer 2. Smaller size transformer, and 3. Suitability			

	A	Only (1) and (2) are true	B	Only (1) and (3) are true
	C	Only (2) and (3) are true	D	All (1) ,(2), and (3) are true
30	Law of intermediate temperature in thermocouples allows them to			
	A	Reference junction compensation	B	Meters for measurement without disturbing the circuit conditions
	C	Extension wires of materials other than one used for making thermocouples	D	Both (b) and (c)
31	A d.c. voltmeter has a sensitivity of 1000 Ω/volt. When it measures half full scale in 100V range, the current through the voltmeter will be			
	A	100 mA	B	1 mA
	C	0.5 mA	D	50 mA
32	A capacitive transducer working on the principle of change of capacitance with change of displacement , exhibits non linear characteristic. The repose of these transducers can be made linear			
	A	Different arrangement	B	Use of an OPAMP
	C	Working then over a small displacement range	D	All of these
33	The dynamic characteristics of capacitive transducer are similar to those of			
	A	Low pass filters	B	High pass filters
	C	Notch filters	D	Band stop filters
34	Capacitive transducers are normally used for			
	A	Static measurement	B	Dynamic measurement
	C	Both static and dynamic measurement	D	Transient measurement
35	An L.V.D.T.			
	A	Exhibits linear characteristics up to a displacement of+-5	B	Has a linearity of 0.05%
	C	Has an infinite resolution and a high sensitivity which is of the order of	D	All of these
36	In an L.V.D.T. the two secondary windings are connected in differential to obtain			

	A	Higher voltage	B	An output voltage which is phase sensitive i.e. the output voltage has a phase which can lead us to a conclusion whether the displacement of the core took place from right to left or from left to right
	C	In order to establish the null or the reference point for the displacement of the core	D	Both (b) and (c)
37	Direct current is preferred over alternating current for testing of ac transmission lines and cables because:			
	A	Heavy charging currents will be drawn and so a large sized transformer is	B	Transmission lines and cables should not be tested with dc
	C	The transformers required for testing cannot be used for long distances	D	All the above
38	Thermocouples are			
	A	Passive transducers	B	Active transducers
	C	Both (a) and (b)	D	Output transducers
39	Three types of temperature transducers are compared a regards their sensitivity. The order in which they exhibit their sensitivities (highest to lowest) is			
	A	Thermistors,RTDs, thermocouples	B	Thermocouples, RTDs, thermistors
	C	RTDs, thermistors, thermocouples	D	RTDs, thermocouples, thermistors
40	The temperature transducers exhibits no-linear behavior.The order in which they exhibit non linearity(highest to lowest) is			
	A	Thermocouples, RTD, thermistors	B	Thermistors,thermocouples,RTDs
	C	RTDs, thermocouples, thermistors	D	Thermistors, RTDs, thermocouples
41	The resistance value of a thermistor is 5000 Ω at 25° C and its resistance temperature coefficient is 0.04/^{o}C. A measurement with a lead resistance of 10 Ω will cause an error of			
	A	0.02 ^{o}C	B	0.05 ^{o}C
	C	0.1 ^{o}C	D	None of these
42	Some wire-wound resistors have bifilar winding. This type of winding is used to			
	A	Increasing the thermal stability	B	Reduce the tolerance
	C	Reduce the inductance of winding	D	Double the power rating of the resistance

43	Tesla coil is a ___ transformer			
	A	Coreless	B	Cascaded
	C	Low impedance	D	High frequency resonant
44	A thermo-couple ammeter gives full-scale deflection of 10 A. When it reads one fifth of the scale,the current will be			
	A	2.0 A	B	4 .0 A
	C	4.47 A	D	5.78 A
45	An accurate voltmeter must have an internal impedance of			
	A	very low value	B	low value
	C	medium value	D	very high value
46	Ratio of the reading of two watt meters connected to measure power in a balanced 3-phase load is 5:3 and the load is inductive. The power factor at load is			
	A	0.917 lead	B	0.917 lag
	C	0.6 lead	D	0.6 lag
47	Rectifier moving coilinstruments responds to			
	A	peak value,irrespective of the nature of the wave form	B	average value for all wave forms
	C	rms value for all wave forms	D	rms value for symmetrical square wave form
48	A meter has a full-scale deflection of 90^0 at a current of 1A . The responce of the meter is square law. Assuming spring control, the current for a deflection at 45^0 will be			
	A	0.25 A	B	0.50 A
	C	0.67 A	D	0.707 A
49	A permanent magnet moving coil type ammeter and a moving iron type ammeter are connected in series in a resistive circuit fed from output of a half wave rectfier voltage source. If moving iron type instrument reach 5 A,the permanent magnet moving coil type instrument is likely to read			
	A	zero	B	2.5 A
	C	3.18 A	D	5.0 A

50	The sensitivity of thermostates as compared with sensitivity of platinum resistance temprature detector over a temprature range of -100° to 400 ^{o}C to change in temprature is			
	A	100 times	B	10^{6} times
	C	10^{7} times	D	10^{3} times
51	Which one of the following mehtods is used to measure power output of a radio transmitter while it is radiating?			
	A	Electostatic meter	B	Three wattmeter method
	C	Three ammeter method	D	Two wattmeter method
52	The resistance of a thermometer is 5 Ω at 30 ^{o}C and 6.5 Ω at 60 ^{o}C. Using linear approximation, the value of resistance temperature co-efficient at 45 ^{0}			
	A	0.009/ ^{o}C	B	0.0087/^{o}C
	C	0.0085/^{o}C	D	0.01/^{o}C
53	A zero to 300 V voltmeter has an error of 12% of the full-scale deflection. If the true voltage is 30 V, then the range of reading on this voltmeter would be			
	A	20 V to 40 V	B	24 V to 36 V
	C	29.4 V to 30.6 V	D	29.94 to 30.06 V
54	The use of _____ instruments is merely conifened within laboratories as standardizing instruments			
	A	absolute	B	indicating
	C	recording	D	integrating
55	Which of the following instruments shows the instanteneous value of the electrical quantity being measured at which it is being measured.			
	A	absolute	B	indicating
	C	recording	D	integrating
56	_____ instruments are those which measure the total quantity of electricity delivred in a particular time period.			
	A	absolute	B	indicating

	C	recording	D	integrating
57	Which of the following instruments are integrating instruments?			
	A	Ammeters	B	Wattmeters
	C	Voltmeters	D	Ampere-hour and watt-hour meters
58	According to application, instruments are classified as			
	A	switch board	B	portable
	C	Both (A) and (B)	D	None of the above
59	Which of the following essential features is possessed by an indicating instrument?			
	A	Deflecting device	B	Controlling device
	C	Damping device	D	A, B and C
60	A _____ device prevents the oscillations of the moving system and enables the latter to reach its final position quickly			
	A	Deflecting device	B	Controlling device
	C	Damping device	D	Any one of the above
61	The spring material used in a spring control device should have the follwoing property			
	A	should be non-magnetic	B	most be of low specific temperature co-efficient
	C	should have low specific resistance	D	A, B and C
62	Which of the following properties a damping oil must possess?			
	A	should be non-evaporative	B	must be good insulator
	C	viscocity of the oil should not change with temperature	D	A, B and C
63	A moving coil permanent-magnet instrument can be used as _____ by using low resistance shunt			
	A	Ammeter	B	voltmeter
	C	flux meter	D	ballastic galvanometer

64	Which of the followin es may be used for extending the range of instruments?			
	A	Shunts and multipliers	B	current transformers
	C	potential transformers	D	A, B and C
65	For handling greater currents induction wattmeters are used in conjunction with			
	A	potential transformers	B	current transformers
	C	either of the above	D	Both (A) and (B)
66	Induction type single phase energy meters measures electric energy in			
	A	kW	B	Wh
	C	kWh	D	VAR
67	Most common form of A.C meters met with every day domestic and industrial installations are			
	A	moving iron meters	B	mercury motor meters
	C	induction type single phase energy meters	D	A, B and C
68	A potentiometer may be used for			
	A	measurement of resistance	B	measurement of current
	C	calibration of ammeters and voltmeters	D	A, B and C
69	_____ is an insrument which measures the insulation resistance of an electric circuit relative to earth			
	A	Tangent galvanometer	B	Meggar
	C	Current transformer	D	Any of the above
70	The household energymeter is			
	A	absolute	B	indicating
	C	recording	D	integrating
71	The chemical effecct of current is used in			

	A	D.C ammeter hour meter	B	D.C ammeter
	C	D.C energy meter	D	None of the above
72	In majority of instruments damping is provided by			
	A	fluid friction	B	spring
	C	eddy currents	D	A, B and C
73	An ammeter is a			
	A	secondary instrument	B	absolute instrument
	C	recording instrument	D	integrating instrument
74	The disc of an instrument using eddy current should be of			
	A	conducting and magnetic material	B	conducting and non-magnetic material
	C	non-conducting and magnetic material	D	None of the above
75	The function of the shunt in an ammeter is to			
	A	bypass the current	B	increase the sensitivity of the ammeter
	C	increase the resistance of ammeter	D	None of the above
76	The multiplier and the meter coil in a voltmeter are in			
	A	series	B	parallel
	C	series-parallel	D	None of the above
77	A moving iron instrument can be used for			
	A	D.C only	B	A.C only
	C	Both A.C and D.C	D	None of the above
78	The scale of a rectifier instrument is			
	A	linear	B	non-linear

	C	either A or B	D	neither A nor B
79	For measurement of current at high frequency we should use			
	A	moving iron meters	B	electrostatic instrument
	C	Thermocouples instrument	D	None of the above
80	The resistance in the circuit of the moving coil of a dynamometer wattmeter should be			
	A	almost zero	B	low
	C	high	D	None of the above
81	A dynamometer wattmeter can be used for			
	A	Both A.C and D.C	B	A.C only
	C	D.C only	D	None of the above
82	The pressure coil of a wattmeter should be connected on the supply side of the current coil when			
	A	load impedance is high	B	load impedance is low
	C	supply voltage is low	D	None of the above
83	In a low power factor wattmeter the pressure coil is connected			
	A	to the supply side of the current coil	B	to the laod side of the current coil
	C	in any of the side of the current coil	D	None of the above
84	In a low power factor wattmeter the compensating coil is connected			
	A	in series with current coil	B	in parallel with current coil
	C	in series with pressure coil	D	in parallel with pressure coil
85	In a 3-phase power measurement by two wattmeter method in a balanced circuit, both the watt meters had identical readings. The power factor of the load must be			
	A	unity	B	o.8 lagging
	C	0.8 leading	D	zero

86	In a 3-phase power measurement by two wattmeter method in a balanced circuit, the reading of one of the watt meter is zero. The power factor of the load must be			
	A	unity	B	0.5 lag
	C	0.3 lag	D	zero
87	The adjustment of position of shading bands, in an energy meter is done to provide			
	A	friction compensation	B	creep compensation
	C	braking troque	D	None of the above
88	An ohmmeter is a			
	A	moving iron meter	B	moving coil instrument
	C	dynamometer instrument	D	None of the above
89	When a cpacitor is connected to the terminal of ohmmeter, the pointer indiacted a low resistance initially and then slowly to infinite position. This shows that capacitor is			
	A	short-circuited	B	all right
	C	faulty	D	can not be said
90	For the mesurement of very high resistance, the following is used			
	A	Kelvin's double bridge	B	Megger
	C	Wheat stone bridge	D	None of the above
91	The electrical power to a megger is provided by			
	A	battery	B	permanent magnet D.C generator
	C	A.C generator	D	Any of the above
92	Murray loop test can be used for location of			
	A	ground fault on a cable	B	short circuit fault on a cable
	C	both the ground fault and the short-circuit fault	D	None of the above
93	For the mesurement of low D.C voltage accurately, the follwing is used			

	A	samll range moving coil voltmeter	B	D.C potentiometer
	C	small range thermocouple voltmeter	D	None of the above
94	For the measurement of true open circuit e.m.f of a battery, the following is the best choice			
	A	D.C voltmeter	B	Ammeter and a known resistance
	C	D.C potentiometer	D	None of the above
95	A voltage of about 200 V can be measured			
	A	directly by a D.C potentiometer	B	a D.C potentiometer in conjunction with a volt ratio box
	C	a D.C potentiometer in conjunction with a known resitance	D	None of the above
96	A direct current can be measured with the help of			
	A	a D.C potentiometer in conjunction with a standard resitance	B	directly by a D.C potentiometer
	C	a D.C potentiometer in conjunction with a volt ratio box	D	None of the above
97	For the measurement of the resitance by a potentiometer			
	A	necessary to standardise the potentiometer	B	not necessary to standardise the potentio meter
	C	a D.C potentiometer in conjunction with a volt ratio box	D	None of the above
98	A phase shifting transfromer is used in conjunction with			
	A	D.C potentiometer	B	Drysdale poterntiometer
	C	A.C co-ordinate potentiometer	D	crompton potentiometer
99	In order to have higher accuracy, the slide wire of a potentiometer should be			
	A	as long as possible	B	as hsort as possible
	C	neither too small nor too large	D	Very thick
100	For the measurement of A.C voltage with the help of an A.C potentiometer, the supply for the potentiometer is taken from			
	A	from the source which is not the same as the unknown voltage	B	from a battery

	C	from the same source as that of the unknown voltage	D	Any of the above
101	The reliability of the instrument refer to			
	A	Measurement of changes due to temperature variations	B	Degree to which repeatability continues to remain within specified limits
	C	The life of the instrument	D	The extent to which the characteristics remain linear
102	If two meters X and Y requires 40mA and 50mA respectively, to give full scale deflection, then:			
	A	X is more sensitive	B	Y is more sensitive
	C	Both X and Y are equally sensitive	D	It would not be possible to access the sensitivity on the basis of the given data
103	The damping torque must operate only when the moving system of the indicating instrument is:			
	A	Actually moving	B	Stationary
	C	Just starting to move	D	Near its full deflection
104	If a voltmeter is connected, like an ammeter in series to the load:			
	A	The measurement reading will be too high	B	The meter will burn
	C	Almost no current will flow in the circuit	D	An instantaneously high current will flow
105	Preferred material for permanent magnet is:			
	A	Stainless steel	B	Alnico
	C	Tongston still	D	Soft iron
106	Air friction damping is used in the instruments which is:			
	A	Moving iron	B	Moving coil
	C	Induction	D	Hot wire
107	PMMC instrument gives uniform scale because:			
	A	It uses spring control	B	It uses eddy current damping
	C	The deflection torque is proportional to the instrument current	D	Both (A) and (C)

108	Maxwell-Wien bridge is used to measure:			
	A	Inductance	B	Capacitance
	C	Dielectric loss	D	Frequency
109	A thermo-couple instrument can be used for the measurement of			
	A	Direct current only	B	Alternating current only
	C	Both direct current and alternating current	D	dc/ac voltage only
110	Electrostatic type instruments are mainly used for measurement of:			
	A	Heavy currents	B	Low currents
	C	Low voltages	D	High voltages
111		The instrument which is cheapest for dc measurement is		
	A	Moving iron	B	PMMC
	C	Hot-wire	D	Electro-dynamo
112	Which of the following voltmeter have least power consumption:			
	A	Moving iron	B	Hot-wire
	C	Electrostatic	D	Induction type
113	Which of the following instruments have least torque/weight ratio:			
	A	Dynamometer type	B	PMMC
	C	Attraction type moving iron	D	Repulsion type moving iron
114	Which of the following instruments can be used for full scale deflection of 300o			
	A	PMMC	B	Indution type
	C	Hot-wire	D	electrostatic
115	.While testing cables the galvanometer used should be initially short-circuited in order to protect it from sudden initial inrush currents as the cable have:			

	A	A low value of initial resistance	B	A low value of initial capacitance
	C	A high value of initial capacitance	D	Both (a) and (b)
116	Potentiometer is an _____ instrument:			
	A	indicating	B	comparision
	C	calibrating	D	recording
117	Which of the following bridge is frequency sensitive			
	A	Wheatstone bridge	B	Maxwell bridge
	C	Anderson bridge	D	Wien bridge
118	Tesla coil is a ___ transformer			
	A	Coreless	B	Cascaded
	C	Low impedance	D	High frequency resonant
119	If damping torque is not provided in an instrument			
	A	the instrument will show full wave of quantity even under small values	B	the pointer will move only when full rated load is provided
	C	the pointer will oscillate about its final deflected position and will never come	D	the pointer will oscillate about its final deflected position for quite sometime before coming to rest
120	When the damping force is more than the optimum,the instrument will become			
	A	dead	B	oscillating
	C	slow and lethargic	D	fast and sensitive
121	In a moving iron type ammeter, the coil has			
	A	large number of turns of thick wire	B	large number of turns of thin wire
	C	few turns of thin wire	D	few turns of thick wire
122	In moving iron type instruments because of the hysteresis in the iron parts of the moving system, the readings are			

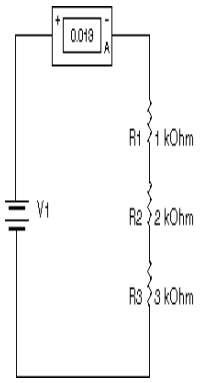
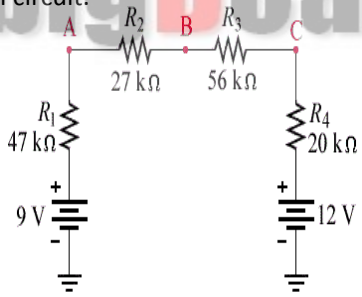
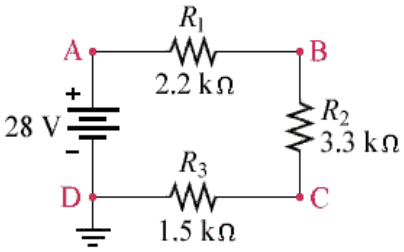
	A	higher on descending values but lower on ascending values	B	higher on ascending values but lower on descending values
	C	higher on both ascending as well as descending values	D	lower on both ascending as well as descending values
123	A moving coil galvanometer has a resistance os 4 ohms and gives full scale deflection when carrying 30 milliamperes. The instrument can be used to measure 150 volts by connecting in series with the			
	A	9996 ohms	B	5004 ohms
	C	5000 ohms	D	4996 ohms
124	If torque/weight ratio of an instrument is low, then it can be concluded that			
	A	the meter will have uniform scale	B	the meter will have non-uniform scale
	C	the sensitivity of the meter will be high	D	the sensitivity of the meter will be low
125	A moving coil instrument gives full deflection with 15 mA. The instrument has resistance of 5 ohms. If a resistance of 0.80 ohms is connected in parrel with the instrument will be capable of reading upto			
	A	150mA	B	600mA
	C	750mA	D	1000mA
126	Which instrument has necessarily the 'square law' type scale?			
	A	permanent magnet moving coil	B	Hot wire instruments
	C	Moving iron repulsion	D	None of above
127	A moving coil ammeter having a resistance of 10 ohms gives full scale deflection when a current of5 mA is passed through it. The instrument can be used for the measurement of voltage upto 5 V by			
	A	connecting a resistance of 990-- parallel to the ammeter	B	connecting a resistance of 990--- parallel to the load
	C	connecting a resistance of 990 -- in series with the instrument	D	connecting a resistance of 990-- in series with the load
128	Which type of damping is generally preferred in case of instrument having weak magnetic field?			
	A	Air friction damping	B	Fluid friction damping
	C	Eddy current damping	D	Hysteresis damping
129	Power is being measured by two Wattmeter method in a balanced three phase system. The Wattmeter reading are, W1=250kW W2=50kW. If the latter reading is obtained after reversing the connections			
	A	unity	B	0.655

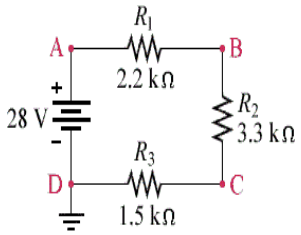
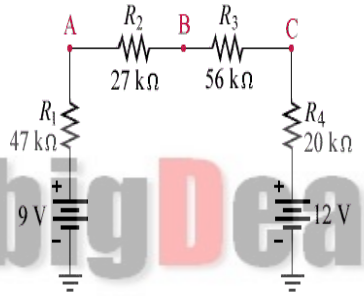
	C	0.5	D	0.359
130	In which instrument the deflecting torque depends on frequency			
	A	Hot wire instruments	B	Moving coil instruments
	C	Moving iron instruments	D	Induction type instruments
131	A dynamometer type wattmeter with its voltage coil connected across the load side of the instrument reads 180 W. If the load voltage be 200 Vand voltage coil branches a resistance of 2000 Ω , the power			
	A	200 W	B	180 W
	C	160 W	D	150W
132	When the shunt resistance of a galvanometer circuit increased, its			
	A	current sensitivity increase	B	current sensitivity decrease
	C	damping increase	D	controlling torque decreases
133	For the measure of voltage and current in the ratio frequency range, suitable instrument is			
	A	moving iron type	B	moving coil type
	C	electro-thermic type	D	electrostatic type
134	Which of the following meters will require the smallest shunt resistance?			
	A	0-10 mA	B	0-100 mA
	C	0-1 mA	D	0-10 μA
135		In shunt type ohmmeter, full scale deflection current indicator is marked		
	A	zero	B	infinite
	C	100 m Ω	D	100MΩ
136	The commonly used material for thermocouples is			
	A	Chromel copel	B	Chromel-alumel
	C	Platinum-rhodium	D	Any of the above

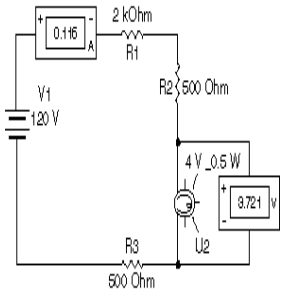
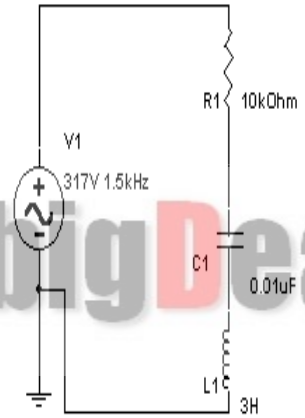
137	A balometer is an element which			
	A	senses optical input and delivers thermal output	B	senses thermal input
	C	senses electrical input and delivers thermal output	D	senses optical input and delivers electrical output
138	In the power measurement by two wattmeter method in a balanced 3-phase system with a pure inductive load			
	A	both the wattmeters will read the same but with opposite signs	B	both the wattmeters will indicate zero
	C	both the wattmeters will read the same but with same signs	D	one wattmeter will indicate zero and the other some non zero value
139	One single phase energy meter operating on 230 V and 5 A for 5 hours makes 1940 revolutions. Meter constant in revolutions is 400. The power factor of the load will be			
	A	1	B	0.8
	C	0.707	D	0.6
140	A 0-10 mA PMMC ammeter reads 4 mA in a circuit. Its bottom spring suddenly snaps. The meter will now read nearly			
	A	10 mA	B	8 mA
	C	2 mA	D	zero
141	Hysteresis in an istruments means			
	A	repeatability of the instrument	B	reliability of the instrument
	C	change in same reading when input is first increased and then decreased	D	the inaccuracy due to change in temperature
142	It is required to measure temparature in the range of 1300 ^{o}C to 1500 ^{o}C. The most suitable thermocouple to be used as a tranducer would be			
	A	Chromel- constantan	B	Iron-constantan
	C	Chrome-alumel	D	Platinum-rhodium
143	The effective reactance of an indutive coil			
	A	increases because of stray cpacitance as the frequency increases	B	decreases because of stray cpacitance as the frequency increases
	C	remain the same irrespective of the increase in frequency even if stray	D	None of the above

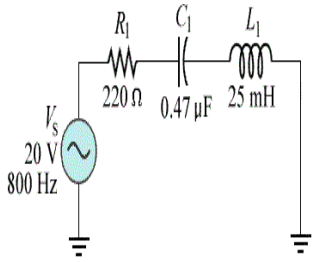
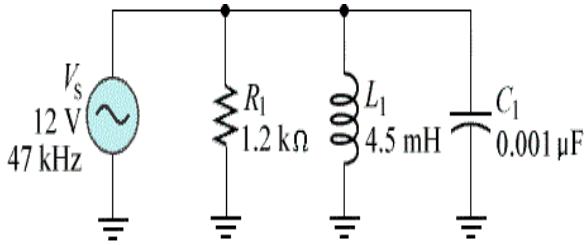
144	A compensated wattmeter has its reading corrected for error due to			
	A	frequency	B	friction
	C	power consumed in current coil	D	power consumed in pressure coil
145	If a dynamometer type wattmeter is connected in an ac circuit, the power indicated by the wattmeter will be			
	A	volt-ampere product	B	average power
	C	peak power	D	instanteneous power
146	DC voltage of the order of a few mV can be measured accurately by			
	A	moving coil voltmeter	B	null balancing potentiometer
	C	moving iron voltmeter	D	electro static voltmeter
147	The accuracy of a measuring instrument is determined by			
	A	closeness of the value indicated by it to the correct value of the measurand	B	repeatability of the measurand
	C	speed with which the instrument's reading approaches the final value	D	least change in the value of the measurand that could be detected by the instrument
148	While measuring power in a three phase balanced circuit, the one wattmeter reads zero and the other reads positive maximum. The power factor of the load is			
	A	zero	B	0.5
	C	0.866	D	1
149	Creep in energy meter can be prevented by			
	A	using extra turns on the voltage coil	B	having two holes on opposite sides of the disc
	C	using a stronger break magnet	D	using steel laminations of high permeability
150	The measurement of a quantity			
	A	is an act of comparision of an unknown quantity with another quantity	B	is an act of comparision of an unknown quantity with known quantity whose accuracy may be knwon
	C	is an act of comparision of an unknown quantity with known quantity with a predefined accepted standard which is	D	None of the above
151	In the center zero analog ammeter having a range of -10 A to 10 A, there is a detectable change of the pointer from its zero position on either side of the scale only if the curent reaches a value of 1 A (on			

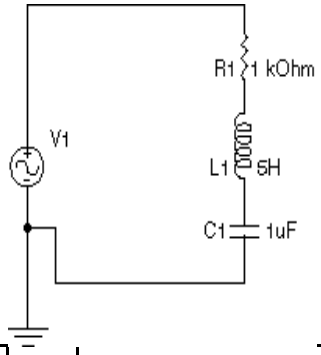
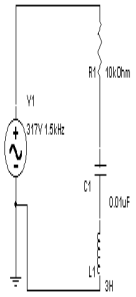
	A	resolution of 1 A	B	dead zone of 1 A
	C	dead zone of 2 A	D	sensititvity of 1 A
152	A 1 mA ammeter has a resistance of 100 Ω. It is to be converted to a 1 A ammeter. The value of the shunt resistance is			
	A	0.001 Ω	B	0.1001 Ω
	C	100000 Ω	D	100 Ω
153	Power in a d.c circuit is measured by measuring the voltameter across and current through the circuit. The voltage and current measurement are made to an accuracy of ±2 % and ±3% respectively. The			
	A	±2 %	B	±3 %
	C	±6%	D	±5 %
154	A 0-300 V voltmeter has guranteed accuracy of 1% full scale reading. The voltage measured by the instrument is 83 V. The percent limiting error is			
	A	0.95	B	1.81
	C	3.62	D	4.85
155	The power consumption of PMMC instruments is typically about			
	A	0.25 W to 2 W	B	0.25 mW to 2 mW
	C	25 µW to 200 µW	D	none of these
156	Which of the following are the disadvatages of shunts for use at high currents?			
	A	It is difficult to achieve good accuracy with shunts	B	Power consumption of the shunts is large
	C	The metering circuit is not electrically isolated from the power circuit	D	All of the above
157	Power is defined as:			
	A	the rate at which work is done	B	Work
	C	the conversion of energy	D	Joules

158	What is the dc source voltage? 			
	A	78V	B	39V
	C	13V	D	0V
159	With a total resistance of 3300 ohms and a 45 V source, if R is 1200 ohms, what will be its voltage drop?			
	A	16.36V	B	32.72V
	C	10.90V	D	15.00V
160	Calculate the voltage at point B in the given circuit. 			
	A	+10.48V	B	+0.94V
	C	+2.6V	D	+3V
161	In the given circuit, what type of failure will cause the voltage at point B to equal the voltage at point C? 			

	A	R_1 shorts	B	R_2 shorts
	C	R_3 shorts	D	R_2 opens
162	What is the voltage at points B to D in the given circuit? 			
	A	+19.2V	B	+8.8V
	C	+28V	D	-19.2V
163	Calculate the voltage at point C in the given circuit. 			
	A	+1.48V	B	+0.94V
	C	+11.6V	D	+3V
164	An 8-ohm resistor is in series with a lamp. The circuit current is 1 A. With 20 V applied, what voltage is being allowed for the lamp?			
	A	4V	B	8V
	C	12V	D	20V

165	What is wrong, if anything, with this circuit? 			
	A	R1 is open.	B	R1 is shorted
	C	R2 is open.	D	R2 is shorted.
166	What is the total current in the given circuit? 			
	A	15.6 mA	B	17.8 mA
	C	21.9 mA	D	26.0 mA
167	When $X_C = X_L$ the circuit:			
	A	draws maximum current	B	applied voltage is zero
	C	is at resonance	D	draws minimum current
168	At resonance, the term bandwidth includes all frequencies that allow what percentage of maximum current to flow?			
	A	50	B	62.3
	C	70.7	D	95.3

169	What is the voltage across the capacitor in the given circuit? 			
	A	6.8 V	B	11.9 V
	C	16.1 V	D	22.9 V
170	What is the impedance of the given circuit? 			
	A	1.05 k Ω	B	1.33 k Ω
	C	2.19 k Ω	D	3.39 k Ω
171	What is the true power consumed in a 30 V series RLC circuit if Z = 20 ohms and R = 10 ohms?			
	A	15.0 watts	B	22.5 watts
	C	30.0 watts	D	45.0 watts
172	At any resonant frequency, what voltage is measured across the two series reactive components?			
	A	Applied	B	Reactive
	C	Zero	D	inductive and capacitive

173	What is the resonance frequency? 			
	A	31.8 Hz	B	71 Hz
	C	7.1 kHz	D	31.8 kHz
174	What is the total impedance of a 60 Hz series RLC circuit when X_L = 7.5 ohms, X_C = –265.3 ohms, and R = 33 ohms?			
	A	257.8 ohms	B	259.9 ohms
	C	290.8 ohms	D	1989.75 ohms
175	What is the approximate phase angle in a series RLC circuit when V_C = 117 V, V_R = 14.5 V, and V_L = 3.3 V?			
	A	–45.0 degrees	B	–82.7 degrees
	C	–90.0 degrees	D	–172.7 degrees
176	What is the voltage across R1, C1, and L1? 			
	A	V_R = 156 V, V_C = 165 V, V_L = 441 V	B	V_R = 178 V, V_C = 187 V, V_L = 503 V
	C	V_R = 219 V, V_C = 232 V, V_L = 619 V	D	V_R = 260 V, V_C = 276 V, V_L = 735 V
177	The ___ of a circuit describes the ability of that circuit to respond to certain frequencies while rejecting all others.			

	A	bandwidth	B	selectivity
	C	sensitivity	D	quality factor
178	A 1.2 k Ω resistor is in series with a 15 mH coil across a 10 kHz ac source. The magnitude of the total impedance is			
	A	152.6 Ω	B	1,526 Ω
	C	1,200 Ω	D	942 Ω
179	A 140 Ω resistor is in parallel with an inductor having 60 Ω inductive reactance. Both components are across a 12 V ac source. The magnitude of the total impedance is			
	A	5.51 Ω	B	55.15 Ω
	C	90 Ω	D	200 Ω
180	When the frequency of the voltage applied to a series *RL* circuit is decreased, the voltage drop in the resistor			
	A	decreases	B	increases
	C	does not change	D	cannot be determined without values
181	Which of the following power factors results in less energy loss in an *RL* circuit?			
	A	1	B	0.8
	C	0.4	D	0.2
182	If a load is purely inductive and the reactive power is 12 VAR, the apparent power is			
	A	0 VA	B	12 VA
	C	6 VA	D	24 VA
183	If the frequency is halved and the resistance is doubled, the impedance of a series *RL* circuit			
	A	Doubles	B	halves
	C	remains constant	D	cannot be determined without values
184	A 470 Ω resistor and a 0.2 µF capacitor are in parallel across a 2.5 kHz ac source. The admittance, **Y**, in rectangular form, is			
	A	212 Ω	B	2.12 mS + *j* 3.14 mS

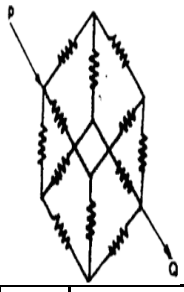
	C	3.14 mS + *j* 2.12 mS	D	318.3 Ω
185	A positive angle of 30° is equivalent to a negative angle of			
	A	–30°	B	–330°
	C	–60°	D	–180°
186	In a series *RC* circuit, 12 $V_{(rms)}$ is measured across the resistor and 15 $V_{(rms)}$ is measured across the capacitor. The rms source voltage is			
	A	3V	B	27V
	C	19.2V	D	1.9V
187	A 6 kHz sinusoidal voltage is applied to a series *RC* circuit. The frequency of the voltage across the resistor is			
	A	0 Hz	B	12 kHz
	C	6kHz	D	18 kHz
188	When the frequency of the source voltage decreases, the impedance of a parallel *RC* circuit			
	A	increases	B	decreases
	C	does not change	D	decreases to zero
189	In a parallel *RC* circuit, there is 100 mA through the resistive branch and 100 mA through the capacitive branch. The total rms current is			
	A	200 mA	B	100 mA
	C	282 mA	D	141 mA
190	An ac circuit consists of a resistor and a capacitor. To increase the phase angle above 45°, the following condition must exist:			
	A	$R = X_C$	B	$R > X_C$
	C	$R < X_C$	D	$R = 5X_C$
191	What is the angular difference between +*j* 4 and –*j* 4?			
	A	30°	B	90°
	C	180°	D	270°

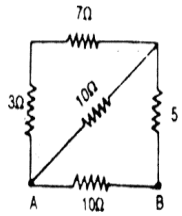
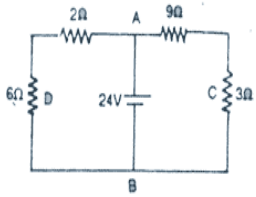
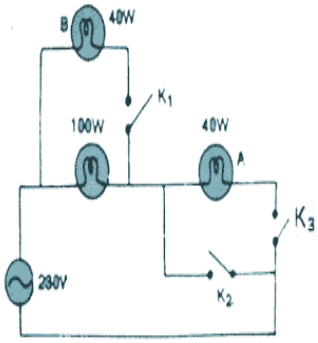
192	For a certain load, the true power is 150 W and the reactive power is 125 VAR. The apparent power is			
	A	19.52 W	B	195.2 W
	C	275 W	D	25 W
193	When the frequency of the voltage applied to a series RC circuit is increased, the phase angle			
	A	increases	B	decreases
	C	remains the same	D	becomes erratic
194	In a series RC circuit, when the frequency and the resistance are halved, the impedance			
	A	doubles	B	doubles
	C	is reduced to one-fourth	D	cannot be determined without values
195	A 2 kΩ resistor and a 0.002 µF capacitor are in series across an ac source. Current in the circuit is 6.50 mA. The true power is			
	A	84.5 mW	B	845 mW
	C	13 mW	D	130 mW
196	A certain series circuit consists of a 1/8 W resistor, a 1/4 W resistor, and a 1/2 W resistor. The total resistance is 1200 Ω. If each resistor is operating in the circuit at its maximum power dissipation, total			
	A	27 mA	B	2.7 Ma
	C	19 mA	D	190 mA
197	Which of the following series combinations dissipates the most power when connected across a 120 V source?			
	A	one 220 Ω resistor	B	two 220 Ω resistors
	C	three 220 Ω resistors	D	four 220 Ω resistors
198	The following resistors are connected in a series circuit: 470 Ω, 680 Ω, 1 kΩ, and 1.2 k.Ω. The voltage source is 20 V. Current through the 680 Ω resistor is approximately			
	A	60 mA	B	30 mA
	C	6 mA	D	300 mA
199	A series circuit consists of a 4.7 kΩ, a 12 kΩ, and a 2.2 kΩ resistor. The resistor that has the most voltage drop is			

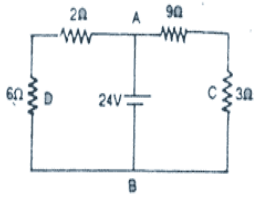
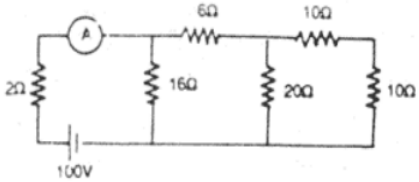
	A	the 12 kΩ	B	the 2.2 kΩ
	C	the 4.7 kΩ	D	impossible to determine from the given information
200	All the voltage drops and the source voltage added together in a series circuit is equal to			
	A	the total of the voltage drops	B	the source voltage
	C	zero	D	the total of the source voltage and the voltage drops
201	Two resistors are in series: a 5.6 kΩ and a 4.7 kΩ. The voltage drop across the 5.6 kΩ resistor is 10 V. The voltage across the 4.7 kΩ resistor is			
	A	8.39 V	B	10 V
	C	2.32 V	D	0 V
202	There are five resistors in a given series circuit and each resistor has 6 V dropped across it. The source voltage			
	A	is 6 V	B	depends on the current flow
	C	depends on the resistor values	D	is 30 V
203	Four equal-value resistors are in series with a 12 V battery and 13.63 mA are measured. The value of each resistor is			
	A	22 Ω	B	220 Ω
	C	880 Ω	D	88 Ω
204	The total resistance of a circuit is 680 Ω. The percentage of the total voltage appearing across a 47 Ωresistor that makes up part of the total series resistance is			
	A	68%	B	47%
	C	69%	D	6.91%
205	An ammeter has an internal resistance of 50 Ω. The meter movement itself can handle up to 1 mA. If 10 mA is applied to the meter, the shunt resistor, R_{SH1}, is approximately			
	A	55 Ω	B	5.5 Ω
	C	50 Ω	D	9 Ω
206	The total resistance of a parallel circuit is 50 Ω. If the total current is 120 mA, the current through the 270 Ω resistor that makes up part of the parallel circuit is approximately			
	A	22 mA	B	120 mA

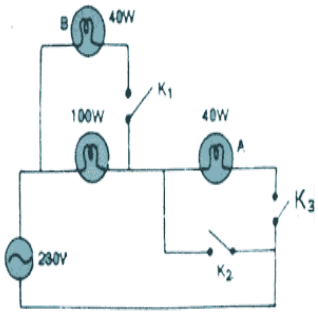
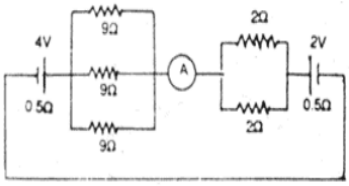
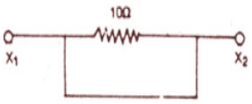
	C	220 mA	D	50 mA
207	When a 1.6 kΩ resistor and a 120 Ω resistor are connected in parallel, the total resistance is			
	A	greater than 1.6 kΩ	B	greater than 120 Ω but less than 1.6 kΩ
	C	less than 120 Ωbut greater than 100 Ω	D	less than 100 Ω
208	If there are a total of 120 mA into a parallel circuit consisting of three branches, and two of the branch currents are 40 mA and 10 mA, the third branch current is			
	A	50 mA	B	70 mA
	C	120 mA	D	40 mA
209	Three lights are connected in parallel across a 120 volt source. If one light burns out,			
	A	the remaining two will glow dimmer	B	the remaining two will glow brighter
	C	the remaining two will not light	D	the remaining two will glow with the same brightness as before
210	Four equal-value resistors are connected in parallel. Ten volts are applied across the parallel circuit and 2 mA are measured from the source. The value of each resistor is			
	A	12.5 Ω	B	200 Ω
	C	20 KΩ	D	50 Ω
211	A set of Christmas tree lights is connected in parallel across a 110 V source. The filament of each light bulb is 1.8 kΩ. The current through each bulb is approximately			
	A	610 mA	B	18 mA
	C	110 mA	D	61 mA
212	A 470 Ω resistor, a 220 Ω resistor, and a 100 Ω resistor are all in parallel. The total resistance is approximately			
	A	790 Ω	B	470 Ω
	C	60 Ω	D	30 Ω
213	Five light bulbs are connected in parallel across 110 V. Each bulb is rated at 200 W. The current through each bulb is approximately			
	A	2.2 A	B	137 mA
	C	1.8 A	D	9.09 A

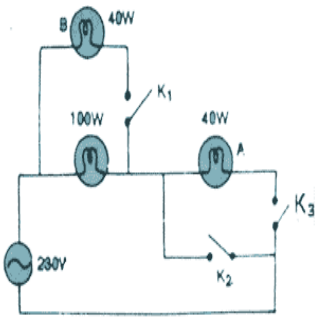
214	Four resistors of equal value are connected in parallel. If the total voltage is 15 V and the total resistance is 600 Ω, the current through each parallel resistor is			
	A	25 mA	B	100 mA
	C	6.25 mA	D	200 mA
215	Five 100 Ω resistors are connected in parallel. If one resistor is removed, the total resistance is			
	A	25 Ω	B	500 Ω
	C	100 Ω	D	20 Ω
216	Four 8 Ω speakers are connected in parallel to the output of an audio amplifier. If the maximum voltage to the speakers is 12 V, the amplifier must be able to deliver to the speakers			
	A	180 W	B	1.5 W
	C	48 W	D	18 W
217	In a certain three-branch parallel circuit, R_1 has 12 mA through it, R_2 has 15 mA through it, and R_3 has 25 mA through it. After measuring a total of 27 mA, you can say that			
	A	R_3 is open	B	R_1 is open
	C	R_2 is open	D	the circuit is operating properly
218	The following currents are measured in the same direction in a three-branch parallel circuit: 200 mA, 340 mA, and 700 mA. The value of the current into the junction of these branches is			
	A	200 mA	B	540 mA
	C	1.24 A	D	900 mA
219	The following resistors are in parallel across a voltage source: 220 Ω, 470 Ω, and 560 Ω. The resistor with the least current is			
	A	220 Ω	B	470 Ω
	C	560 Ω	D	impossible to determine without knowing the voltage
220	We have three resistances of values 2 Ω, 3 Ω and 6 Ω. Which of the following combination will give an effective resistance of 4 Ω?			
	A	All the three resistances in parallel	B	2 Ω resistance in series with parallel combination of 3 Ω and 6 Ω resistance
	C	3 Ω resistance in series with parallel combination of 2 Ω and 6 Ω resistance	D	6 Ω resistance in series with parallel combination of 2 Ω and 3 Ω resistance.

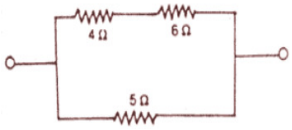
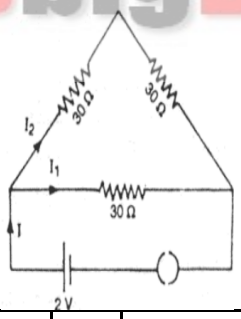
221	Twelve wires of same length and same cross-section are connected in the form of a cube as shown in figure below. If the resistance of each wire is R, then the effective resistance between P and Q will be: 			
	A	R	B	5/6 R
	C	3/4 R	D	4/3 R
222	When P = Power, V = Voltage, I = Current, R = Resistance and G=Conductance, which of the following relation is incorrect?			
	A	V = √ (PR)	B	$P= V^2G$
	C	$G= P / I^2$	D	I =√ (P / R)
223	Which of the following bulbs will have the least resistance?			
	A	220 V, 60 W	B	220 V, 100 W
	C	115 V, 60 W	D	115 V, 100 W
224	The ratio of the resistance of a 100 W, 220 V lamp to that of a 100 W, 110 V lamp will be nearly			
	A	4	B	2
	C	1/2	D	1/4
225	Three 3 Ω resistors are connected to form a triangle. What is the resistance between any two of the corners?			
	A	0.75 Ω		3 Ω
	C	2 Ω		4/3 Ω

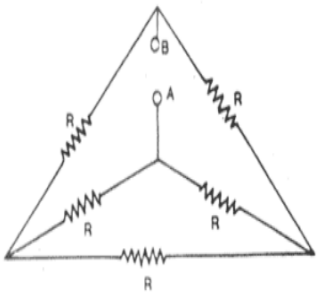
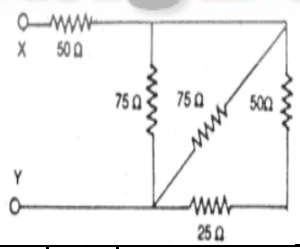
226	Five resistances are connected as shown in figure below. The equivalent resistance between the points A and B will be 			
	A	35 Ω	B	25 Ω
	C	15 Ω	D	5 Ω
227	The voltage drop across the resistor 9 ohm will be 			
	A	18 V	B	12 V
	C	9 V	D	6 V
228	Three lamps are in circuit as shown in Figure given above. The lamp of 100 W will have maximum brightness when: 			
	A	k_1 is closed, k_2 is open and k_3 is closed	B	k_1 is open, k_2 is closed and k_3 is open
	C	k_1 is open, k_2 is closed and k_3 is also closed	D	k_1 is closed, k_2 is open and k_3 is also open
229	Which of the following lamps will have least resistance at room temperature?			
	A	200 W, 220 V	B	100 W, 220 V
	C	60 W, 220 V	D	25 W, 220 V

230	Four resistances R_1 , R_2, R_3 and R_4 are connected in series against 220 V supply. The resistances are such that $R_1 > R_2 > R_3 > R_4$. The least power consumption will be in			
	A	R_1	B	R_2
	C	R_3	D	R_4
231	Which of the following statements is false in case of a series circuit?			
	A	the voltage drop across each resister is same	B	the current flowing through each resistor is the same
	C	applied voltage is equal to the sum of voltage drops across individual resistors	D	resistors are additive
232	In the figure below, the voltage drop will be least in which resistor? 			
	A	2 Ω	B	3 Ω
	C	6Ω	D	2 Ω and 3 Ω
233	For the circuit shown in the figure given below, the meter will read 			
	A	1 A	B	10 A
	C	5 A	D	25 A

234	For the circuit below, which of the following statements is necessarily correct? 			
	A	40 W bulbs will always glow at full brightness	B	100 W bulb will always glows at full brightness
	C	Whatever be the position of keys, at least one 40 W bulb will always glow	D	Whenever current flows through the circuit, 100 W bulb will always glow.
235	For the circuit shown in figure given below, the reading in the ammeter A will be 			
	A	2 A	B	0.5 A
	C	0.4 A	D	0.2 A
236	A 1 kΩ, 1 W resistor can safely pass a current of			
	A	30 mA	B	100 mA
	C	150 mA	D	500 mA
237	A 100 volt bulb has a resistance of 500 ohms. The number of hours it can work for every kWh of energy consumed will be			
	A	20	B	40
	C	50	D	60
238	Resistance between X_1 and X_2 is 			
	A	10 Ω	B	Greater than 10 Ω

	C	0 Ω	D	Less than 10 Ω
239	A current of 1 mA flows through a 1 MΩ, 2 W carbon resistor. The power dissipated as heat in the resistor will be			
	A	2 W	B	1 W
	C	0.5 W	D	10 W
240	In the circuit below, The power consumption of the circuit will be maximum when 			
	A	k_1 and k_3 are closed and k_2 is open	B	k_1 is closed, k_2 and k_3 are open
	C	k_1 and k_2 are closed and k_3 is open	D	all the keys are closed
241	A 10 Ω resistor with a 10 W power rating is expected to be a			
	A	carbon resistor	B	wire wound resistor
	C	either carbon or wire wound resistor	D	neither carbon nor wire wound resistor
242	Two 10 kohm, 5 W resistors in parallel have equivalent resistances of 5 kohm and power rating of			
	A	5 W	B	10 W
	C	15 W	D	20 W
243	A resistor is to be connected across a 45 V battery to provide 1 mA of current. The required resistance with a suitable wattage rating is			
	A	45Ω, 10 W	B	4.5 Ω, 2 W
	C	450 kΩ, 2 W	D	45 kΩ, 1/4 W

244	In the circuit shown below, heat produced in 5 ohm resistance is 10 cal/sec. Heat developed in 4ohm is 			
	A	1 cal/sec	B	2 cal/sec
	C	3 cal/sec	D	4 cal/sec
245	In series as well as parallel circuits the equivalent (total) value of certain parameter is given by $X = X_1 + X_2 + X_3 + X_4 + \ldots$ The parameter X could be			
	A	Resistance	B	Current
	C	Power	D	Voltage
246	The resistance of a 150-scale voltmeter is 12000 ohms. The power consumed by the voltmeter when it is connected across a 125 volt circuit, will be nearly			
	A	0.0013 W	B	1.3 W
	C	0.13 W	D	0.013 W
247	In the circuit shown below, the current I is 			
	A	1 / 45 A	B	1 / 15 A
	C	1 / 10 A	D	1 / 5 A
248	Two batteries have an open-circuit voltage of 12.8 volts each and an internal resistance of 0.08 ohms. The short circuit current of two batteries connected in parallel will be			
	A	80 A	B	120 A
	C	160 A	D	320 A
249	Two loads X and Y, are connected in parallel to a 115 V supply. Load X takes 35 watts and the total current is 2.6 A. The resistance of X is			

	A	379 ohms	B	291 ohms
	C	233 ohms	D	190 ohms
250	Two loads X and Y, are connected in parallel to a 115 V supply. Load X takes 35 watts and the total current is 2.6 A. The power absorbed by Y is			
	A	528 W	B	264 W
	C	132 W	D	66 W
251	Resistance across A and B in the circuit shown below is 			
	A	2 R	B	0.5 R
	C	R	D	4 R
252	Equivalent Resistance between X and Y is 			
	A	100 Ω	B	75 Ω
	C	125 Ω	D	150 Ω
253	The r.m.s value of sinusoidal a.c current is equal to its equal to its value at an angle of .....degree			
	A	0	B	45
	C	60	D	90
254	A resistance of 30 Ω is connected across 240v supply. If a resistance R Ω is connected in parallel with 30Ω resistor across the same supply, the current drawn becomes triple of original one. The unknown			
	A	5 Ω	B	10 Ω

	C	15 Ω	D	30Ω