1. Indium impurity in germanium makes it into a :
n-type of semiconductor
p- type semiconductor
insulator
intrinsic semiconductor

2. Kinetic energy of an electron in the first Bohr's orbit of the hydrogen atom is :
(a) -6.5eV (b) +13.6eV
(c) -29.6 eV (d) -13.6 eV

3. If the refractive angles of the prisms made of crown glass are 10° and 20° respectively. Then the ratio of their colour deviation power will be :
(a) 4 :1 (b) 3 :1
(c) 2 :1 (d) 1 :1

4. If a current of 10 amp flows in 1 sec through a coil and the induced emf is 10 volt. Then the self-inductance of the coil will be:
(a) $-1H$ (b) $-\frac{5}{4}H$
(c) $-\frac{4}{5}$ (d) $-\frac{2}{5}H$

5. If a long hollow copper pipe carries a current then the produced magnetic field will be:
(a) both inside and outside the pipe
(b) neither inside and nor outside pipe
(c) inside the pipe only
(d) outside the pipe only

6. The bodies moving toward each other collide and move away in opposite direction. This is same as rise in temperature of bodies is due to apart of kinetic energy converted into :
(a)electrical energy (b)nuclear energy
(c) mechanical energy (d) heat energy

7. A particle executes S.H.M. of amplitude Then the distance from the initial position, if its kinetic energy is equal to its potential energy :
(a) 0.71 A (b) 1.42 A
(c) 0.375 A (d) 0.91 A

8. The two electric bulbs have 40 watt and 60w rating at 220V. Then the ratio of their resistance will be:
(a) 1:4 (b) 3 : 2
(c) 4 : 3 (d) 2 : 3

9. If the earth losses its gravity then for body:
(a) weight becomes zero but not mass
(b) mass becomes zero but not the weight
(c) both mass and weight become zero
(d) neither mass nor weight become zero

10. A box is lying on an inclined plane. If the box starts sliding when the angle of inclination is 45°, then its coefficient of friction will be :
(a) 1 (b) 2
(c) $\sqrt{3}$ (d) $\frac{\sqrt{3}}{2}$

11. In a semiconductor separation between conduction and valence band is of the order of :
(a) 0 eV (b) 1 eV
(c) 10 eV (d) 50 eV

12. If an electron jumps from 1st orbit to IIIrd orbit, then it will:
(a) not gain energy (b) absorb energy
(c) release energy (d) none of these

13. A person whose nearest distance of distinct vision is 60 cm uses a reading lens of 15 cm focal length. Then the magnification will be:
(a) 5 (b) 3
(c) 2 (d) 1

14. If the magnetic material which moves from strong to weaker parts of magnetic field. Then it is called :
(a) anti-ferromagnetic
(b) ferromagnetic
(c) paramagnetic
(d) diamagnetic

15. A resonance air column of length 17.4 cm resonates with a tuning fork of frequency 512 Hz. The speed of sound in air is :
(a) 356 m/s (b) 330 m/s
(c) 343 m/s (d) 372 m/s

16. When a copper sphere is heated then the percentage increase is maximum in :
(a) diameter (b) volume
(c) length (d) area

17. If the capacity of a spherical conductor is 1 picofarad then its diameter is :
(a) 18 x 10^{-3} m (b) 9 x 10^{-3} m
(c) 4.5x10^{-3}m (d) None of these

18. A body is thrown vertically up from the ground. It reaches maximum height of 20 m in 5 sec then it will reach the ground from its maximum height position after:
(a) 10 sec (b) 2 - 5 sec
(c) 7.5 sec (d) 5 sec

19. A man is standing on a spring platform. Reading of spring balance is 60 kg wt. If man jumps outside from the platform then the reading of spring balance will:
(a) become zero (b) increase
(c) remains same (d) first (b) then (a)

20. If two balls, each of mass 0.06 kg moving in opposite direction with speed 4 m/s, collide and rebound with the same speed then impulse imarted to each ball become of other will be :
(a) 0.48 kg m/s (b) 0.21 kg m/s
(c) 9.12 kg m/s (d) none of these

21. The intrinsic semiconductor become an insulator at:
(a) OK (b) 300K
(c) 0°C (d) - 100°C

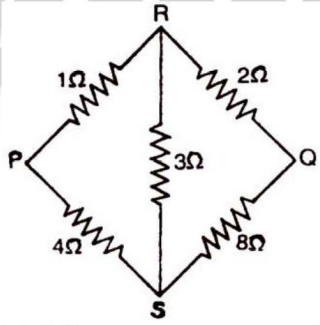
22. The spectrum obtained from sodium vapour lamp is an example of:
(a) absorption spectrum (b) emissive spectrum
(c) continuous spectrum (d) bond spectrum

23. If 1000 droplets each of potential 1 volt and radius r are mixed to form a big drop. Then the potential of the drop as compared to small droplets, will be:
(a) 1000 volt (b) 800 volt
(c) 100 volt (d) 20 volt

24. If a magnet of length 10 cm and pole strength 40 am is placed at an angle 45° in an uniform induction field intensity 2 x 10^ T. The couple acting on it will be:
(a) 0.5656 x 10^{-3} N – m (b) 0.656 x 10^{-4} N - m
(c) 0.5656 x 10^{-5} N – m (d) 0.5656 x 10^{-4} N-m

25. Kinetic energy of an electron accelerated in a potential difference of 1000 volt, will be:
(a) 1.6×10^{-21} J (b) 1.6×10^{-23} J
(c) 1.6×10^{-10} J (d) 1.6×10^{-16} J

26. The equivalent resistance Rp_Q between point p and Q will be :



(a) 8Ω (b) 2.4Ω
(c) 4.5Ω (d) 3Ω

27. Two waves are said to be coherent, if they have:
(a) same frequency, phase and amplitude
(b)different phase and frequency and amplitude
(c) same phase and different amplitude
(d) same frequency but different amplitude

28. In gases of diatomic molecules, the ratio of two specific heats of gases $\frac{C_p}{C_v}$ is :

(a) 1.21 (b) 1.33
(c) 2.80 (d) 1.40

29. Velocity time curve for body projected vertically upward is:

(a) hyperbola (b) ellipse
(c) parabola (d) straight line

30. A bomb is fired from a cannon with a velocity of of 1000 m/s making an angle of 30° with the horizontal. The time taken by the bomb to reach the highest point, will be:

(a) 51 sec (b) 25.5 sec
(c) 61 sec (d) 21 sec

31. A black body at a temperature of 900 K emits energy at a rate, which is proportional to:

(a) $(900)^3$ (b) $(900)^4$
(c) (900) (d) $(900)^2$

32. Number of electron emitted by a surface exposed to light is directly proportional to the:

(a) wavelength of light (b) frequency of light
(c) intensity of light (d) velocity of light

33. The radium of a circular path of an electron moving in the magnetic field to its path is equal to :

(a) $\frac{mv}{Be}$ (b) $\frac{me}{B}$
(c) $\frac{mE}{B}$ (d) $\frac{Be}{mv}$

34. A moving conductor coil produces an induced emf this is in accordance with :

(a) Ampere law (b) Coulomb's law
(c) Faraday'a law (d) Lenz's Law

35. The coefficient of volumetric expansion of mercury is $18\times10^{-5}/^0C$. A thermometer bulb has value of 10^{-6} m^3 and crossectional of stem is 0.002 cm^2 assuming the bulb is tilled mercury at °C the length of mercury at 100°C is :

(a) 18 cm (b) 4.5 cm
(c) 2.25 cm (d) 9 cm

36. A hot electric iron has a resistance of $80\,\Omega$ and is used on a 200 volt source. The electrical energy spent, if used for 2 hrs, is:

(a) 8000Wh (b) 2000Wh
(c) 1000Wh (d) 500Wh

37. A source is moving towards an observer with a speed of 20 m/s and having frequency of 240 Hz. The observer now moving towards the source with a speed of 20 m/s. Apparent frequency heard by the observer, is (velocity of sound = 340 m/s):

(a) 270 Hz (b) 540 Hz
(c) 135 Hz (d) 370 Hz

38. A bomb is dropped from an aeroplane moving horizontally at constant speed, when air resistance is taken into consideration. Then the bomb :

(a) falls on the earth the exactly below the aeroplane
(b) tails on earth behind aeroplane
(c) falls with aeroplane
(d) falls on earth ahead the aeroplane

39. A car of mass 1500 kg is moving with a speed of 12.5 m/s on a circular path of radius 20 cm on a level road. The coefficient of friction between the car and the road, so that the car does not slip, will be:

(a) 0.8 (b) 0.4
(c) 0.2 (d) 0.1

40. If force $\vec{F}=4\hat{i}+5\hat{j}$ and displace $\vec{s}=3\hat{i}+10\hat{k}$ then the work done will be :

(a) 4x6 (b) 6x3
(c) 5x6 (d) 4x3

Answer – Key

1. b	**2. d**	**3. d**	**4. a**	**5. d**	**6. d**	**7. a**	**8. b**	**9. a**	**10. a**
11. b	**12.** b	**13.** a	**14.** d	**15.** a	**16.** b	**17.** a	**18.** d	**19.** d	**20.** a
21. a	**22.** b	**23.** c	**24.** a	**25.** d	**26.** b	**27.** a	**28.** d	**29.** d	**30.** a
31. b	**32.** c	**33.** a	**34.** c	**35.** d	**36.** c	**37.** a	**38.** b	**39.** a	**40.** d