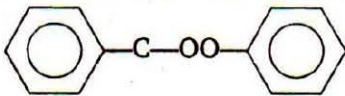

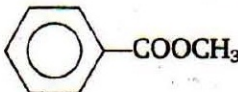
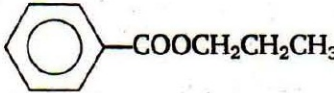
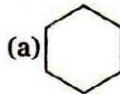
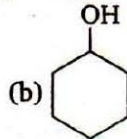
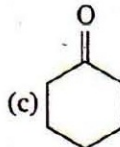
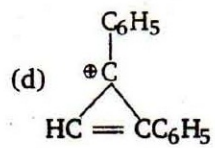


1. The number of moles of KMnO_4 reduced by one mole of KI in alkaline medium is
 (a) 1 (b) 5
 (c) $1/2$ (d) $1/5$
2. Value of x in potash alum, $\text{K}_2\text{SO}_4 \cdot \text{Al}_x(\text{SO}_4)_3 \cdot 24\text{H}_2\text{O}$ is
 (a) 4 (b) 1
 (c) 2 (d) None of these
3. Ozone is used for purifying water because
 (a) it dissociates and release oxygen
 (b) do not leave any foul smell like chlorine
 (c) kills bacteria, cyst, fungi and acts as a biocide
 (d) All of the above
4. Internal energy is sum of
 (a) kinetic energy and potential energy
 (b) all types of energy of the system
 (c) energy of internal system
 (d) None of the above
5. Total volume of atoms present in a face centred cubic unit cell of a metal is (r = atomic radius)
 (a) $\frac{20}{3} \pi r^3$ (b) $\frac{24}{3} \pi r^3$
 (c) $\frac{12}{3} \pi r^3$ (d) $\frac{16}{3} \pi r^3$
6. If two molecules of A and B having mass 100 kg and 64 kg and rate of diffusion of A is 12×10^{-3} , then what will be the rate of diffusion of B ?
 (a) 15×10^{-3} (b) 64×10^{-3}
 (c) 5×10^{-3} (d) 46×10^{-3}
7. Aniline is prepared in presence of Fe/HCl from
 (a) benzene (b) nitrobenzene
 (c) dinitrobenzene (d) None of these
8. Difference between S and S^{2-} as S^{2-} has
 (a) larger radii and larger size
 (b) smaller radii and larger size
 (c) larger radii and smaller size
 (d) smaller radii and smaller size
9. Which of the following is not correct?
 (a) $t_{1/2} = \frac{0.693}{k}$
 (b) $N = N_0 e^{-kt}$
 (c) $\frac{1}{N} - \frac{1}{N_0} = \ln kt_{1/2}$
 (d) None of the above
10. Which is not in accordance to aufbau principle?
 (a) $\begin{array}{|c|c|c|} \hline 2s & 2p & \\ \hline \uparrow\downarrow & \uparrow\downarrow & \uparrow\downarrow \\ \hline \end{array}$ (b) $\begin{array}{|c|c|c|} \hline 2s & 2p & \\ \hline \uparrow\downarrow & \uparrow\downarrow & \uparrow\downarrow \\ \hline \end{array}$
 (c) $\begin{array}{|c|c|c|} \hline 2s & 2p & \\ \hline \uparrow & \uparrow\downarrow & \uparrow\downarrow \\ \hline \end{array}$ (d) $\begin{array}{|c|c|c|} \hline 2s & 2p & \\ \hline \uparrow\downarrow & \uparrow & \uparrow \\ \hline \end{array}$
11. $\text{CH}_3\text{CH}_2\text{Cl}$ undergoes homolytic fission, produces
 (a) $\text{CH}_3\dot{\text{C}}\text{H}_2$ and $\dot{\text{C}}\text{H}_2\text{Cl}$ (b) $\text{CH}_3\overset{\oplus}{\text{C}}\text{H}_2$ and Cl^\ominus
 (c) $\text{CH}_3\overset{\oplus}{\text{C}}\text{H}_2$ and $\dot{\text{C}}\text{H}_2$ (d) $\text{CH}_3\dot{\text{C}}\text{H}_2$ and Cl^\ominus
12. C—C bond order in benzene is
 (a) 1 (b) 2
 (c) between 1 and 2 (d) None of these
13. In colloid particles, range of diameter is
 (a) 1 to 100 nm (b) 1 to 1000 cm
 (c) 1 to 1000 mm (d) 1 to 100 km
14. $\text{Zn}^{2+} \longrightarrow \text{Zn}(s); E^\ominus = -0.76 \text{ V}$
 $\text{Cu}^{2+} \longrightarrow \text{Cu}(s); E^\ominus = -0.34 \text{ V}$
 Which of the following is spontaneous?
 (a) $\text{Zn}^{2+} + \text{Cu} \longrightarrow \text{Zn} + \text{Cu}^{2+}$
 (b) $\text{Cu}^{2+} + \text{Zn} \longrightarrow \text{Cu} + \text{Zn}^{2+}$
 (c) $\text{Zn}^{2+} + \text{Cu}^{2+} \longrightarrow \text{Zn} + \text{Cu}$
 (d) None of the above
15. Highest electron affinity among the following is
 (a) fluorine (b) chlorine
 (c) sulphur (d) xenon
16. Which of the following noble gases is most reactive?
 (a) He (b) Ne
 (c) Ar (d) Xe
17. Which one of the following is a correct set with respect to molecule, hybridisation and shape?
 (a) BeCl_2 , sp^2 , linear
 (b) BeCl_2 , sp^2 , triangular planar
 (c) BCl_3 , sp^2 , triangular planar
 (d) BCl_3 , sp^3 , tetrahedral
18. H_2S is not a/an
 (a) reducing agent
 (b) acidic
 (c) oxidising agent
 (d) None of the above

19. On doubling p and V with constant temperature, the equilibrium constant will
 (a) remain constant
 (b) become double
 (c) become one-fourth
 (d) None of the above
20. What is the electronic configuration of Mn^{2+} ?
 (a) $[Ne] 3d^5, 4s^0$ (b) $[Ar] 3d^5, 4s^2$
 (c) $[Ar] 3d^5, 4s^0$ (d) $[Ne] 3d^5, 4s^2$
21. Increase in atomic size down the group is due to
 (a) increase in number of electrons
 (b) increase in number of protons and neutrons
 (c) increase in number of protons
 (d) increase in number of protons, neutrons and electrons
22. Which is tribasic acid?
 (a) H_3PO_2 (b) H_3PO_4
 (c) $H_4P_2O_7$ (d) H_3PO_3
23. Highest ionising power is exhibited by
 (a) α -rays (b) β -rays
 (c) γ -rays (d) X-rays
24. Blister copper is
 (a) impure Cu
 (b) Cu alloy
 (c) pure Cu
 (d) Cu having 1% impurity
25. Claisen condensation is not given by
 (a) 
 (b) CH_3CH_2COO 
 (c) 
 (d) 
26. $AgNO_3$ does not give precipitate with $CHCl_3$ because
 (a) $CHCl_3$ does not ionise in water
 (b) $AgNO_3$ is chemically inert
 (c) $CHCl_3$ is chemically inert
 (d) None of the above
27. ${}_{90}Th^{228} \rightarrow {}_{83}Bi^{212}$ by
 (a) $4\alpha, 1\beta$ (b) $4\alpha, 2\beta$
 (c) $5\alpha, 1\beta$ (d) $5\alpha, 2\beta$
28. Blood cells do not shrink in blood because blood is
 (a) hypotonic (b) isotonic
 (c) equimolar (d) hypertonic
29. The compound in which underlined carbon uses only its sp^3 hybrid orbitals for bond formation is
 (a) $CH_3\text{C}\underline{O}OH$ (b) $CH_3\text{C}\underline{O}NH_2$
 (c) $CH_3\text{C}\underline{H}CH_2OH$ (d) $CH_3\text{C}\underline{H} = CH_2$
30. *t*-butyl alcohol is
 (a) 2-methyl propan-2-ol
 (b) 2-methyl propan-1-ol
 (c) 3-methyl butan-1-ol
 (d) 3-methyl butan-2-ol
31. Optical isomerism is shown by
 (a) propanol-2 (b) butanol-2
 (c) ethanol (d) methanol
32. When C_2H_2 , CH_4 and C_2H_4 passes through a test tube which have ammoniacal Cu_2Cl_2 , find out which gas comes out unaffected from test tube?
 (a) C_2H_2 and CH_4
 (b) C_2H_2 and C_2H_4
 (c) C_2H_4 and CH_4
 (d) C_2H_2
33. When hydrogen molecules decomposed into it's atoms which conditions gives maximum yield of H atoms?
 (a) High temperature and low pressure
 (b) Low temperature and high pressure
 (c) High temperature and high pressure
 (d) Low temperature and low pressure
34. Natural rubber is a polymer of
 (a) styrene
 (b) chloroprene
 (c) $CH_2 = \underset{\substack{| \\ CH_3}}{C} - CH = CH_2$ or isoprene
 (d) 1, 3-butadiene
35. Which of the following compounds is aromatic?
 (a) 
 (b) 
 (c) 
 (d) 

36. The value of Λ_{eq}^{∞} for NH_4Cl , NaOH and NaCl are respectively, 149.74, 248.1 and $126.4 \text{ ohm}^{-1}\text{cm}^2\text{eq}^{-1}$. The value of Λ_{eq}^{∞} of NH_4OH is
- (a) 371.44
 (b) 271.44
 (c) 71.44
 (d) Cannot be predicted from given data

37. Number of atoms of He in 100 u of He (atomic wt of He is 4) are
- (a) 25 (b) 100
 (c) 50 (d) $100 \times 6 \times 10^{-23}$

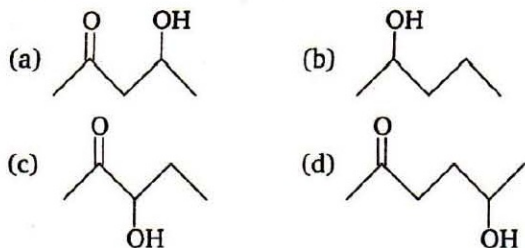
38. Which has least gold number ?
- (a) Gelatin (b) Starch
 (c) Albumin (d) Blood

39. In a compound C, H and N are present in 9 : 1 : 3.5 by weight. If molecular weight of the compound is 108, then the molecular formula of the compound is
- (a) $\text{C}_2\text{H}_6\text{N}_2$ (b) $\text{C}_3\text{H}_4\text{N}$
 (c) $\text{C}_6\text{H}_8\text{N}_2$ (d) $\text{C}_9\text{H}_{12}\text{N}_3$

40. In the following reaction
- $$\text{C}_2\text{H}_2 \xrightarrow[\text{HgSO}_4/\text{H}_2\text{SO}_4]{\text{H}_2\text{O}} \text{X} \rightleftharpoons \text{CH}_3\text{CHO}, \text{ What is X?}$$

- (a) $\text{CH}_3\text{CH}_2\text{OH}$
 (b) $\text{CH}_3-\text{O}-\text{CH}_3$
 (c) $\text{CH}_3\text{CH}_2\text{CHO}$
 (d) $\text{CH}_2=\text{CHOH}$

41. Which one of the following will most readily be dehydrated in acidic conditions ?



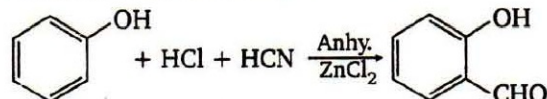
42. Which of the following solutions will have pH = 9 at 298 K ?
- (a) $1 \times 10^{-9} \text{ M HCl}$ solution
 (b) $1 \times 10^{-5} \text{ M NaOH}$ solution
 (c) $1 \times 10^{-9} \text{ M KOH}$ solution
 (d) Both (a) and (b)

43. The following data are for the decomposition of ammonium nitrite in aqueous solution.

Vol. of N_2 in cc	Time (min)
6.25	10
9.00	15
11.40	20
13.65	25
35.65	Infinity

The order of reaction is

- (a) zero (b) one
 (c) two (d) three
44. An alkyl halide by formation of its Grignard reagent and heating with water yields propane. What is the original alkyl halide ?
- (a) Methyl iodide (b) Ethyl iodide
 (c) Ethyl bromide (d) Propyl bromide
45. The following reaction is known as



- (a) Perkin reaction
 (b) Gattermann reaction
 (c) Kolbe reaction
 (d) Gattermann-aldehyde reaction
46. Aldehyde with $\text{NH}_2 \cdot \text{NH}_2$ forms
- (a) hydrazones (b) aniline
 (c) nitrobenzene (d) None of these
47. van't Hoff factor of $\text{Ca}(\text{NO}_3)_2$ is
- (a) one (b) two
 (c) three (d) four
48. 1 mole of H_2 and 2 moles of I_2 are taken initially in a two litre vessel. The number of moles of H_2 at equilibrium is 0.2. Then, the number of moles of I_2 and HI at equilibrium are
- (a) 1.2, 1.6 (b) 1.8, 1.0
 (c) 0.4, 2.4 (d) 0.8, 2.0
49. The volume of water to be added to 100 cm^3 of $0.5 \text{ N H}_2\text{SO}_4$ to get decinormal concentration is
- (a) 400 cm^3 (b) 450 cm^3
 (c) 500 cm^3 (d) 100 cm^3
50. 1.520 g of hydroxide of a metal on ignition gave 0.995 g of oxide. The equivalent weight of metal is
- (a) 1.52 (b) 0.995
 (c) 190 (d) 9

Answer – Key

1.	a	2.	c	3.	d	4.	b	5.	d	6.	a	7.	b	8.	a	9.	c	10.	c
11.	a	12.	c	13.	a	14.	b	15.	b	16.	d	17.	c	18.	c	19.	a	20.	c
21.	a	22.	b	23.	a	24.	d	25.	a	26.	a	27.	a	28.	b	29.	c	30.	a
31.	b	32.	c	33.	a	34.	c	35.	d	36.	b	37.	a	38.	a	39.	c	40.	d
41.	a	42.	b	43.	b	44.	d	45.	d	46.	a	47.	c	48.	a	49.	a	50.	d