1. What is the formula of bleaching powder ?

(a) $CaO(OCl)$ (b) $Ca(OCl)Cl$

(c) $Ca(OCl)_2$ (d) $Ca(OCl)_2Cl$

2. By which one of the following compounds both CH_4 and CH_3-CH_3 can be prepared in one step ?

(a) CH_3I (b) CH_3OH

(c) CH_3CH_2I (d) C_2H_5OH

3. $R-NH-COH \xrightarrow[\text{Pyridine}]{POCl_3}$ product

In the given reaction, what will be the product ?

(a) $R-N\equiv C=O$ (b) $R-\overset{+}{N}\equiv C^-$

(c) $R-C\equiv N$ (d) None of these

4. $A + B = C + D$. If initially the concentration of A and B are both equal but at equilibrium, concentration of D will be twice of that of A,

then what will be the equilibrium constant of reaction ?
(a) 4/9 (b) 9/4
(c) 1/9 (d) 4

5. Which of the following is secondary pollutant ?
(a) CO_2 (b) N_2O
(c) PAN (d) SO_2

6. The geometry of $Ni(CO)_4$ and $Ni(PPh_3)_2Cl_2$ are :
(a) both square planar
(b) tetrahedral and square planar respectively
(c) both tetrahedral
(d) square planar and tetrahedral respectively

7. Cr is member of 3*d* transition series of atomic number 24. What will be its electronic configuration ?
(a) $3d^6 4s^2$ (b) $3d^5 4s^2$
(c) $3d^4 4s^2$ (d) $3d^5 4s^1$

8. Which of the following compounds is carborundum ?
(a) Al_2O_3 (b) SiO_2
(c) SiC (d) SnO_2

9. What amount of Cl_2 gas liberated at anode, if 1 ampere current is passed for 30 minute from NaCl solution ?
(a) 0.66 mol (b) 0.33 mol
(c) 0.66 g (d) 0.33 g

10. Certain crystals produce electric signals on application of perssure. This phenomenon is called :
(a) pyroelectricity (b) ferroelectricity
(c) piezoelectricity (d) ferrielectricity

11. Aspirin is :
(a) antipyretic (b) tranquilizer
(c) narcotic (d) anaesthetic

12. Which of the following is not a property of liquid state ?
(a) Intermolecular force of attraction in a liquid is quite large
(b) All liquids accompanied by cooling on evaporation
(c) Lower the boiling point of a liquid, greater is its vapour pressure at room temperature
(d) A liquid boils at high temperature at the top of a mountain than at the sea level

13. In Williamson's synthesis, ethoxyethane is prepared by :
(a) passing ethanol over heated alumina
(b heating sodium ethoxide with ethyl bromide
(c) treating ethyl alcohol with excess of H_2SO_4 at 430-440 K
(d) heating ethanol with dry Ag_2O

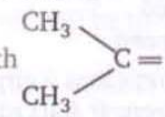
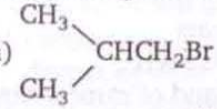
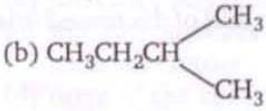
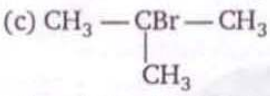
14. If for a sucrose solution, elevation in boiling point is 0.1°C, then what will be the boiling point of NaCl solution for same molal concentration ?
(a) 0.1°C (b) 0.2°C
(c) 0.08°C (d) 0.01°C

15. Which of the following have maximum number of unpaired electrons ?
(a) Fe^{3+} (b) Fe^{2+}
(c) Co^{2+} (d) Co^{3+}

16. Which of the following statements is false ?
(a) $CaOCl_2$ gives OH^-, Cl^- and OCl^- in aqueous solution
(b) Diamond and graphite are allotropes of carbon
(c) Bleaching action of Cl_2 in moist condition is not permanent
(d) Calomel is Hg_2Cl_2

17. What will be the order of Ist ionisation energy ?
(a) Li > Na > K (b) K > Li > Na
(c) Na > Li > K (d) Li > K > Na

18. The element $_{90}Th^{232}$ belongs to thorium series. Which of the following will act as the end product of the series ?
(a) $_{82}Pb^{208}$ (b) $_{82}Bi^{209}$
(c) $_{82}Pb^{206}$ (d) $_{82}Pb^{207}$

19. The reaction of HBr with  in the presence of peroxide will give :
(a) 
(b) 
(c) 
(d) $CH_3CH_2CH_2CH_2Br$

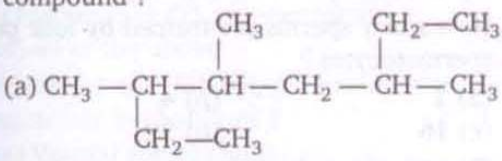
20. Given pH of a solution *A* is 3 and it is mixed with another solution *B* having pH 2. If both mixed, then resultant pH of the solution will be :
(a) 3.2 (b) 1.9
(c) 3.4 (d) 3.5

21. With which of the given pairs CO_2 resembles ?
(a) $HgCl_2$, C_2H_2
(b) $HgCl_2$, $SnCl_4$
(c) C_2H_2, NO_2
(d) N_2O and NO_2

22. If magnetic quantum number of a given atom represented by –3, then what will be its principal quantum number ?
(a) 2 (b) 3
(c) 4 (d) 5

23. Which of the following will show geometrical isomerism ?
(a) but-1-ene
(b) but-2-ene
(c) 2, 3-dichlorobutane
(d) ethene

24. What will be the IUPAC name of given compound ?

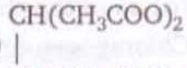
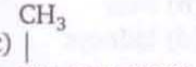


(a) 2, 5-diethyl-4-methylhexane
(b) 3, 4, 6-trimethyloctane
(c) 2, 5, 6-trimethyloctane
(d) 3, 5-dimethyl-6-ethylheptane

25. A mixture of camphor and benzoic acid can be separated by :
(a) chemical method
(b) sublimation
(c) fractional distillation
(d) extraction with a solvent

26. HCHO reacts with CH_3MgI to give :
(a) CH_3CH_2OH (b) CH_3OH
(c) CH_3CH_2I (d) CH_3I

27.  reacts with acetic acid in presence of Hg^{2+} to give :

(a) 
(b) 
(c) 
(d) none of these

28. Which of the following have highest electron affinity ?
(a) F (b) Cl
(c) N (d) O

29. Which among the following is strongest acid ?
(a) $H(ClO)O_2$ (b) $H(ClO)O_3$
(c) H(ClO)O (d) H(ClO)

30. Which of the following amino acid is optically inactive ?
(a) Phenyl alanine (b) Glycine
(c) Glutamic acid (d) Asparagine

31. Glucose has difference from fructose in that it :
(a) does not undergo hydrolysis
(b) gives silver mirror with Tollen's reagent
(c) monosaccharide
(d) none of the above

32. Which of the following gives correct arrangement of compounds involved based on their bond strength ?
(a) HF > HCl > HBr > HI
(b) HI > HBr > HCl > HF
(c) HF > HBr > HCl > HI
(d) HCl > HF > HBr > HI

33. The enthalpy of combustion at 25°C of H_2, cyclohexane (C_6H_{12}) and cyclohexene (C_6H_{10}) are – 241, – 3920 and – 3800 kJ/mol respectively. The heat of hydrogenation of cyclohexene is :
(a) – 121 kJ/mol (b) + 121 kJ/mol
(c) – 242 kJ/mol (d) + 242 kJ/mol

34. The entropy values (in $JK^{-1}mol^{-1}$) of $H_2(g) = 130.6$, $Cl_2(g) = 223.0$ and $HCl(g) = 186.7$ at 298 K and 1 atm pressure. Then entropy change for the reaction : $H_2(g) + Cl_2(g) \longrightarrow 2HCl(g)$ is :
(a) + 540.3 (b) + 727.3
(c) – 166.9 (d) + 19.8

35. A certain sample of gas has a volume of 0.2 L measured at 1 atm pressure and 0°C. At the same pressure but 273°C, its volume will be :
(a) 0.4 L (b) 0.8 L
(c) 27.8 L (d) 55.6 L

36. Hardness of water is due to presence of salts of :
(a) Na^+ and K^+ (b) Ca^{2+} and Mg^{2+}
(c) Ca^{2+} and K^+ (d) Ca^{2+} and Na^+

37. Total number of atoms represented by the compound $CuSO_4 \cdot 5H_2O$ is :
(a) 27 (b) 21
(c) 5 (d) 8

38. The half-life of a first order reaction having rate constant $k = 1.7 \times 10^{-5}\ s^{-1}$ is :
(a) 12.1 h (b) 9.7 h
(c) 11.3 h (d) 1.8 h

39. Which one of the following contain isopropyl group ?
(a) 2, 2, 3, 3-tetramethylpentane
(b) 2-methylpentane
(c) 2, 2, 3-trimethylpentane
(d) 3, 3-dimethylpentane

40. When electrons are trapped into the crystal in anion vacancy, the defect is known as :
(a) Schottky defect
(b) Frenkel defect
(c) stoichiometric defect
(d) F-centres

Answer – Key

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