

1. The simplest way to check whether a system is colloidal is by
(a) electro dialysis
(b) finding out particle size
(c) tyndall effect
(d) brownian movement
2. In the reaction $\text{H}_2(\text{g}) + \text{Cl}_2(\text{g}) \rightleftharpoons 2\text{HCl}(\text{g})$
(a) $K_p \neq K_c$ (b) $K_p = K_c$
(c) $K_p > K_c$ (d) $K_p < K_c$
3. One mole of oxygen at 273 K and one mole of sulphur dioxide at 546 K are taken in two separate containers, then,
(a) kinetic energy of $\text{O}_2 >$ kinetic energy of SO_2
(b) kinetic energy of $\text{O}_2 <$ kinetic energy of SO_2
(c) kinetic energy of both are equal
(d) None of the above
4. The complexes $[\text{PtCl}_2(\text{NH}_3)_4]\text{Br}_2$ and $[\text{PtBr}_2(\text{NH}_3)_4]\text{Cl}_2$ are examples for isomerism
(a) geometrical (b) optical
(c) ionisation (d) linkage
5. The electronic configuration of Cr^{3+} is
(a) $[\text{Ar}] 3d^4 4s^2$ (b) $[\text{Ar}] 3d^3 4s^0$
(c) $[\text{Ar}] 3d^2 4s^1$ (d) $[\text{Ar}] 3d^5 4s^1$
6. Angle strain in cyclopropane is
(a) $24^\circ 44'$ (b) $9^\circ 44'$
(c) $44'$ (d) $-5^\circ 16'$
7. Haloalkane in the presence of alcoholic KOH undergoes
(a) elimination (b) polymerisation
(c) dimerisation (d) substitution

8. Identify the ore not containing iron
 (a) limonite (b) siderite
 (c) carnallite (d) chalcopyrites
9. Ammonium ion is
 (a) neither an acid nor base
 (b) both an acid and a base
 (c) a conjugate acid
 (d) a conjugate base
10. What is the equivalent weight of SnCl_2 in the following reaction,

$$\text{SnCl}_2 + \text{Cl}_2 \longrightarrow \text{SnCl}_4$$

 (a) 95 (b) 45
 (c) 60 (d) 30
11. During the formation of a chemical bond
 (a) electron-electron repulsion becomes more than the nucleus-electron attraction
 (b) energy of the system does not change
 (c) energy increases
 (d) energy decreases
12. Nitration of nitrobenzene at 125°C with mixed acids gives
 (a) *meta*-dinitrobenzene
 (b) *ortho*-dinitrobenzene
 (c) *para*-dinitrobenzene
 (d) 1,3,5-trinitro benzene
13. Benzene reacts with chlorine in sunlight to give a final product
 (a) CCl_4 (b) $\text{C}_6\text{H}_6\text{Cl}_6$
 (c) C_6Cl_6 (d) $\text{C}_6\text{H}_5\text{Cl}$
14. Hofmann's bromamide reaction is to convert
 (a) acid to alcohol (b) alcohol to acid
 (c) amide to amine (d) amine to amide
15. What is the time (in sec) required for depositing all the silver present in 125 mL of 1 M AgNO_3 solution by passing a current of 241.25 A? ($1\text{F} = 96500$ coulombs)
 (a) 10 (b) 50
 (c) 1000 (d) 100
16. The correct order in which the first ionisation potential increases is
 (a) Na, K, Be (b) K, Na, Be
 (c) K, Be, Na (d) Be, Na, K
17. When conc. H_2SO_4 is heated with P_2O_5 , the acid is converted into
 (a) sulphur trioxide
 (b) sulphur dioxide
 (c) sulphur
 (d) a mixture of sulphur dioxide and sulphur trioxide
18. Mg^{2+} is isoelectronic with
 (a) Cu^{2+} (b) Zn^{2+} (c) Na^+ (d) Ca^{2+}
19. Gram molecular volume of oxygen at STP is
 (a) 3200 cm^3 (b) 5600 cm^3
 (c) 22400 cm^3 (d) 11200 cm^3
20. +I effect is shown by
 (a) $-\text{CH}_3$ (b) $-\text{Br}$
 (c) $-\text{Cl}$ (d) $-\text{NO}_2$
21. The amino acid which is not optically active is
 (a) lactic acid (b) serine
 (c) alanine (d) glycine
22. A condensation polymer among the following polymers is
 (a) teflon (b) polystyrene
 (c) PVC (d) decron
23. Dehydration of alcohol is an example of which type of reaction?
 (a) Substitution (b) Elimination
 (c) Addition (d) Rerrangement
24. When sulphur dioxide is passed in an acidified $\text{K}_2\text{Cr}_2\text{O}_7$ solution, the oxidation state of sulphur is changed from
 (a) +4 to 0 (b) +4 to +2
 (c) +4 to +6 (d) +6 to +4
25. Which among the following statement is false?
 (a) The adsorption may be monolayered or multilayered
 (b) Particle size of adsorbent will not affect the amount of adsorption
 (c) Increase of pressure increases amount of adsorption
 (d) All of the above
26. Molarity of a given orthophosphoric acid solution is 3 M. Its normality is
 (a) 9 N (b) 0.3 N (c) 3 N (d) 1 N

27. Graphite is a soft solid lubricant extremely difficult to melt. The reason for this anomalous behaviour is that graphite
- is an allotropic form of carbon
 - is a non-crystalline substance
 - has carbon atoms arranged in large plates of rings of strongly bonded carbon atoms with weak interplate bonds
 - has molecules of variable molecular masses like polymers
28. C^{14} is
- a natural non-radioactive isotope
 - an artificial non-radioactive isotope
 - an artificial radioactive isotope
 - a natural radioactive isotope
29. Presence of halogen in organic compounds can be detected using
- Leibig's test
 - Duma's test
 - Kjeldahl test
 - Beilstein's test
30. Which one of the following is an example of non-reducing sugar?
- Sucrose
 - Lactose
 - Maltose
 - Cellobiose
31. Covalent compounds have low melting point because
- covalent molecules are held by van der Waals' force of attraction
 - covalent bond is less exothermic
 - covalent bond is weaker than ionic bond
 - covalent molecules have definite shape
32. Dalton's law of partial pressure is applicable to which one of the following systems?
- $NH_3 + HCl$
 - $NO + O_2$
 - $H_2 + Cl_2$
 - $CO + H_2$
33. Which of the following is an intensive property?
- Temperature
 - Viscosity
 - Surface tension
 - All of these
34. A metal present in vitamin B_{12} is
- aluminium
 - zinc
 - iron
 - cobalt
35. The oxidation state of iron in $K_4[Fe(CN)_6]$ is
- 1
 - 4
 - 3
 - 2
36. Half-life of a reaction is found to be inversely proportional to the cube of initial concentration. The order of reaction is
- 5
 - 2
 - 4
 - 3
37. The most basic compound in the following is
- NH_3
 - CH_3NH_2
 - $HN(CH_3)_2$
 - $N(CH_3)_3$
38. The reagent used in Clemmensen's reduction is
- conc. H_2SO_4
 - $Zn-Hg/conc. HCl$
 - aq. KOH
 - alc. KOH
39. Geometrical isomerism is shown by
- $-C-C-$
 - $>C=C<$
 - $-C\equiv C-$
 - None of these
40. A compound that undergoes bromination easily is
- toluene
 - benzoic acid
 - phenol
 - benzene
41. Reaction of aniline with benzaldehyde is
- polymerisation
 - condensation
 - addition
 - substitution
42. Entropy of the universe is
- constant
 - zero
 - continuously decreasing
 - continuously increasing
43. Aluminium oxide is not reduced by chemical reactions since
- reducing agent contaminate
 - the process pollute the environment
 - aluminium oxide is highly stable
 - aluminium oxide is reactive
44. The incorrect statement in respect of chromyl chloride test is
- formation of red vapours
 - formation of lead chromate
 - formation of chromyl chloride
 - liberation of chlorine

45. The set of compounds in which the reactivity of halogen atom in the ascending order is
 (a) vinyl chloride, chloroethane, chlorobenzene
 (b) vinyl chloride, chlorobenzene, chloroethane
 (c) chloroethane, chlorobenzene, vinyl chloride
 (d) chlorobenzene, vinyl chloride, chloroethane
46. The IUPAC name for tertiary butyl iodide is
 (a) 4-iodo butane
 (b) 2-iodo butane
 (c) 1-iodo-3-methyl propane
 (d) 2-iodo-2-methyl propane
47. Glacial acetic acid is obtained by
 (a) chemically separating acetic acid
 (b) treating vinegar with dehydrating agents
 (c) crystallising, separating and melting acetic acid
 (d) distilling vinegar
48. Iron loses magnetic property at
 (a) melting point (b) 1000 K
 (c) Curie point (d) boiling point
49. The IUPAC name of $K_2[Ni(CN)_4]$ is
 (a) potassium tetracyanonickelate (II)
 (b) potassium tetracyanato nickelate (III)
 (c) potassium tetracyanatonickel (II)
 (d) potassium tetracyanonickel (III)
50. Which one of the following is aromatic?
 (a) Cyclopentadienyl cation
 (b) Cyclooctatetraene
 (c) Cycloheptatriene
 (d) Cycloheptatrienylcation

Answer Key

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