

## Chemistry 2012

1. The root mean square velocity of a gas is doubled when the temperature is

- (a) increased four times
- (b) increased two times
- (c) reduced to half
- (d) reduced to one fourth

Ans.(a)

2. Acidity of phenol is due to

- (a) hydrogen bonding
- (b) phenolic group
- (c) benzene ring
- (d) resonance stabilisation of its anion

Ans.(d)

6. When ice melts into water, the entropy

- (a) becomes zero
- (b) remains same
- (c) decreases
- (d) increases

Ans.(d)

7. Reduction of nitrobenzene in the presence of Zn/NH<sub>4</sub>Cl gives

- (a) azobenzene
- (b) hydrazobenzene
- (c) N-phenyl hydroxyl amine
- (d) aniline

Ans.(c)

8. Which one of the following is not a protein?

- (a) Wool (b) Nail  
(C) Hair (d) DNA

**Ans.(d)**

**9. Which of the following hexoses will form the same osazone when treated with excess phenyl hydrazine?**

- (a) D-glucose, D-fructose and D-galactose  
(b) D-glucose, D-fructose and **D-mannose**  
(c) D-glucose, D-mannose and D-galactose  
(d) D-fructose, D-mannose and D-galactose

**Ans.(b)**

**10. A silver cup is plated with silver by passing 965C of electricity. The amount of Ag deposited is**

- (a) 107.89 g (b) 9.89 g  
(c) 1.0002g (d) 1.08g

**Ans.(d)**

**13. The maximum proportion of available volume that can be filled by hard spheres in diamond is**

- (a) 0.52 (b) 0.34  
(C) 0.32 (d) 0.68

**Ans.(b)**

**14. If we mix a pentavalent impurity in a crystal lattice of germanium. what type of semiconductor formation will occur?**

- (a) P-type  
(b) n-type  
(c) Both (a) and (b)  
(d) None of the two

**Ans.(b)**

**16. The product of reaction between alcoholic silver nitrite with ethyl bromide is**

- (a) ethene (b) ethane
- (c) ethyl nitrile (d) nitro ethane

**Ans.(d)**

**20. Which of the following does not answer iodoform test?**

- (a) n-butyl alcohol
- (b) Acetophenone
- (c) Acetaldehyde
- (d) Ethylmethyl ketone

**Ans.(a)**

**21. Which one of the following undergoes reaction with 50% sodium hydroxide solution to give the corresponding alcohol and acid?**

- (a) Phenol (b) Benzaldehyde
- (c) Butanal (d) Benzoic acid

**Ans.(b)**

**26. The relative lowering of vapour pressure of a dilute aqueous solution containing non volatile solute is 0.0125. The molality of the solution is about**

- (a) 0.70 (b) 0.50
- (c) 0.90 (d) 0.80

**Ans.(a)**

**30. Sulphuric acid has great affinity for water because**

- (a) it hydrolyses the acid
- (b) it decomposes the acid
- (c) acid forms hydrates with water
- (d) acid decomposes water

**Ans.(c)**

**31. Helium-oxygen mixture is used by deep sea divers in preference to nitrogen-oxygen mixture because**

- (a) helium is much less soluble in blood than nitrogen
- (b) nitrogen is much less soluble in blood than helium
- (c) due to high pressure deep under the sea nitrogen and oxygen react to give poisonous nitric oxide
- (d) nitrogen is highly soluble in water

**Ans.(a)**

**33. The equivalent weight of  $\text{KMnO}_4$  for acid solutions**

- (a) 79 (b) 52.16
- (c) 158 (d) 31.6

**Ans.(d)**

**38. For a first order reaction, the concentration changes from 0.4 M to 0.1 M in 15 min. The time taken for the concentration to change from 0.1 M to 0.025 M is**

- (a) 30 min (b) 15 min
- (c) 7.5 min (d) 60 min

**Ans.(a)**

**39. When phenol is treated with excess bromine water it gives**

- (a) m-bromophenol
- (b) o- and p- bromophenols
- (c) 2, 4-dibromophenol
- (d) 2, 4, 6 tribromophenol

**Ans.(d)**

**40. Which reaction is suitable for the preparation of trichloroacetic acid**

- (a) Iodoform reaction

- (b) Nef reaction
- (c) Stephen's reaction
- (d) Perkin condensation

Ans.(a)

**43. A group of atoms can function as a ligand only when**

- (a) it is a small molecule
- (b) it has an unshared electron pair
- (c) it is a negatively charged ion
- (d) it is a positively charged ion

Ans.(b)

**50. Which among the following statements is correct with respect to the optical isomers?**

- (a) Enantiomers are non-superimposable mirror images
- (b) Diastereomers are superimposable i. or images
- (c) Enantiomers are superimposable mirror images
- (d) *Meso* forms have no plane of symmetry

Ans.(a)

**51. Inductive effect involves**

- (a) delocalisation of  $\pi$ -electrons
- (b) displacement of  $\pi$ -electrons
- (c) delocalisation of  $\sigma$ -electrons
- (d) displacement of  $\sigma$ -electrons

Ans.(b)

**53. Lipids are**

- (a) nucleic acids occurring in plants
- (b) proteins occurring in animals
- (c) carbohydrates occurring in plants
- (d) fats of natural origin

Ans.(d)

**54. The enzyme pepsin hydrolyses**

- (a) proteins to amino acids
- (b) lipids to fatty acids
- (c) glucose to ethyl alcohol
- (d) polysaccharides to monosaccharides

**Ans.(a)**

**58. Ammonia is dried over**

- (a) slaked lime
- (b) calcium chloride
- (c) phosphorus pentoxide
- (d) quick lime

**Ans.(d)**