

31.01.2020

Revision-II

Marks:70

Std: XI (A-D)

Chemistry

Time: 3Hrs

I. Choose the correct answer:

15x1=15

1. A liquid which decomposes at its boiling point can be purified by _____.

- a) distillation at atmospheric pressure
 b) distillation under reduced pressure
 c) fractional distillation d) steam distillation

2. Match the list-I and list-II using the correct code given below in the list:

List-I	List-II	A	B	C	D
A. CF_2Cl_2	1) Organic Pesticide	a) 2	4	3	1
B. CHCl_3	2) Solvent in paint remover	b) 1	2	4	3
C. DDT	3) Preservative for anatomical specimens	c) 4	3	1	2
D. CH_2Cl_2	4) Refrigerant in refrigerator	d) 3	1	2	4

3. Biochemical oxygen Demand value less than 5 ppm indicates a water sample to be _____.

- a) highly polluted b) poor in dissolved oxygen
 c) rich in dissolved oxygen d) low COD

4. If K_b and K_f for a reversible reactions are 0.8×10^{-5} and 1.6×10^{-4} respectively, the value of the equilibrium constant is _____.

- a) 20 b) 0.2×10^{-1} c) 0.05 d) None of these

5. Which one of the following binary liquid mixtures exhibits positive deviation from Raoult's law?

- a) Acetone + chloroform b) Water + nitric acid
 c) HCl + water d) ethanol + water

6. Identify the colour formed in the test for phosphorous using ammonium molybdate.

- a) Crimson red colour b) Deep violet colour
 c) Prussian blue colour d) Canary yellow colour

7. 4-hydroxy phenol reacts with acidified potassium dichromate to give _____.

- a) quinol b) cyclohexanone c) phenol d) P-Benzoquinone

8. The reactivity of alcohols with halo acid is _____.

- a) $3^0 > 2^0 > 1^0$ b) $1^0 > 3^0 > 2^0$ c) $2^0 > 3^0 > 1^0$ d) $3^0 > 1^0 > 2^0$

9. 0.5 mole of ethanol is mixed with 1.5 mole of water. Then the mole fraction of ethanol and water are _____.

- a) 0.75, 0.25 b) 0.25, 0.75 c) 0.5, 0.5 d) 0.90, 0.10

10. Conversion of benzene to chlorobenzene in the presence of CuCl_2/HCl is named as _____.

- a) Fittig reaction b) Raschig process c) Dow's process
 d) Gattermann reaction

11. Alcohol on refluxing with $\text{K}_2\text{Cr}_2\text{O}_7$ gives _____.

- a) Ester b) Aldehyde c) Sugar d) Carboxylic acid

12. Assertion (A): Excessive use of chlorinated pesticide causes soil and water pollution.

Reason (R): Such pesticides are non-biodegradable.

Choose the correct option out of the choices given below each question.

(i) Both (A) and (R) are correct and (R) is the correct explanation of (A)

(ii) Both (A) and (R) are correct and (R) is not the correct explanation of (A)

(iii) Both (A) and (R) are not correct

(iv) (A) is correct but (R) is not correct

(a) (i) (b) (ii) (c) (iii) (d) (iv)

13. Decreasing order of nucleophilicity is _____.

- a) $\text{OH}^- > \text{NH}_2^- > \text{OCH}_3^- > \text{RNH}_2^-$
 b) $\text{NH}_2^- > \text{OH}^- > \text{OCH}_3^- > \text{RNH}_2^-$
 c) $\text{NH}_2^- > \text{CH}_2\text{O}^- > \text{OH}^- > \text{RNH}_2^-$
 d) $\text{CH}_2\text{O}^- > \text{NH}_2^- > \text{OH}^- > \text{RNH}_2^-$

14. Osmotic pressure (π) of a solution is given by the relation

- a) $\pi RT = n$ b) $V = \pi nRT$ c) $\pi = nRT$ d) $\pi V = nRT$

15. _____ group is ortho para directing and deactivating group.

- a) amino b) methyl c) halogen d) aldehyde

II. Answer any 6 of the following:

6x2=12

Q.No.24 is compulsory

16. Explain why pure liquids and solids can be ignored while writing the value of equilibrium constants?

17. Draw the lewis structures of (i) NO_3^- (ii) SO_3

18. What is metamerism? Give example.

19. What are the conditions for optical isomerism?

20. What is hyper conjugation?
21. Explain Markownikov's rule with example.
22. Give the preparation of DDT.
23. What is Green chemistry?
24. $\text{CCl}_4 > \text{CHCl}_3 > \text{CH}_2\text{Cl}_2 > \text{CH}_3\text{Cl}$ is the decreasing order of boiling point of haloalkanes. Give reason.
- III. Answer any 6 of the following: 6x3=18
 Q.No.33 is compulsory
25. What are the effects of photochemical smog?
26. Explain (i) Carbylamine reaction and (ii) Sandmeyer's reaction.
27. State Saytzeff's rule.
28. Why Grignard reagent should be prepared in anhydrous condition?
29. Complete the reactions:
 (i) $\text{CH}_2=\text{CH}_2 \xrightarrow{\text{I}_2}$
 (ii) $\text{CaC}_2 \xrightarrow{\text{H}_2\text{O}}$
30. Differentiate electrophiles and nucleophiles.
31. Describe Fajan's rule.
32. How will you determine molar mass from osmotic pressure?
33. For an equilibrium reaction $K_p=0.0260$ at 25°C , $\Delta H=32.4 \text{ kJmol}^{-1}$ calculate K_p at 37°C .
- IV. Answer the following: 5x5=25
34. (a) Deduce Van't Hoff equation. (or)
 (b) (i) State and explain Henry's law. (3M)
 (ii) Write the factors responsible for deviation from Raoult's law. (2M)
35. (a) (i) Explain the formation of O_2 by using molecular orbital theory. (3M)
 (ii) Draw the resonating structure of carbonate ion. (2M)
 (or)
 b) (i) Explain the sp^2 hybridisation in BF_3 (3M)
 (ii) Why σ bond is stronger than π -bond?

36. (a) (i) Trans isomer is more stable than cis isomer – Justify your answer. (2M)
 (ii) What is meant by functional group? Give two examples. (3M)
 (or)
 (b) (i) Explain SN^2 mechanism with example. (3M)
 (ii) How will you detect the presence of nitrogen in an organic compound? (2M)
37. a) Write an account on the following reactions:
 (i) Kolbe's electrolytic method (ii) Wurtz reaction
 (iii) Corey-House mechanism
 (or)
 b) A simple aromatic Hydrocarbon (A) reacts with Cl_2 to give (B) of molecular formula $\text{C}_6\text{H}_5\text{Cl}$. (B) on reaction with ethyl chloride along with sodium metal to give (C) of molecular formula C_8H_{10} . (C) alone reacts with Na metal in presence of ether gives $\text{DC}_{92}\text{H}_{10}$. Identify A, B, C and D. (3M)
38. a) (i) Give the strategies to control environmental pollution.
 (ii) What are bio-degradable and non-biodegradable pollutants? Give eg. (or)
 b) Explain the following:
 (i) Ozonolysis of ethane (ii) Friedel Craft's reaction
 (iii) Swarts reaction (iv) Hunsdicker reaction
 (v) Convert acetylene to benzene.