

SAMPLE QUESTION PAPER 3

CHEMISTRY

CLASS – XII

Time allowed: 3hrs

Maximum Marks: 70

General Instructions:

- All questions are compulsory.
- Q.no. 1 to 5 are very short answer questions and carry 1 mark each.
- Q.no. 6 to 10 are short answer questions and carry 2 marks each.
- Q.no. 11 to 22 are also short answer questions and carry 3 marks each
- Q.no. 23 is a value based question and carry 4 marks.
- Q.no. 24 to 26 are long answer questions and carry 5 marks each
- Use log tables if necessary, use of calculators is not allowed.

- Give the structure of Propane-1,2,3-tricarbaldehyde.
- Give the IUPAC name of $C_6H_5-CH_2-CH_2COOH$.
- Identify all the possible monochloro structural isomers expected to be formed on free radical monochlorination of $(CH_3)_2CHCH_2CH_3$.
- What is prosthetic group? Give its function.
- Why the hydrolysis of ester is slow in the beginning and becomes faster after sometimes?
- How is cast iron different from pig iron?
- Give reasons:
 - Aldehydes do not form stable hydrates but chloral exists as chloral hydrate.
 - Acetic acid can be halogenated in presence of red phosphorus and chlorine but formic acid cannot be halogenated.
- Give the application of Henry's law on scuba divers.
- Explain Frenkel defect.

Or

Silver forms ccp lattice and X-ray studies of its crystals show that the edge length of its unit cell is 408.6 pm. Calculate the density of silver (Atomic mass = 107.9 u).

- Write a note on order of a reaction.
- Identify all the possible monochloro structural isomers expected to be formed on free radical monochlorination of $(CH_3)_2CHCH_2CH_3$.
 - During the reaction of alcohols with KI, sulphuric acid is not used. Give reason
 - Alkyl halides though polar, are immiscible with water. Why?
- How the presence of sulphur dioxide is detected?
- Vapour pressure of chloroform ($CHCl_3$) and dichloromethane (CH_2Cl_2) at 298 K are 200 mm Hg and 415 mm Hg respectively.

a) Calculate the vapour pressure of the solution prepared by mixing 25.5 g of CHCl_3 and 40 g of CH_2Cl_2 at 298 K.

b) The mole fractions of each component in vapour phase.

14. Complete the following reactions:

a) $\text{HgCl}_2 + \text{PH}_3 \rightarrow$

b) $\text{NaClO}_3 + \text{I}_2 \rightarrow$

c) $\text{SCl}_2 + \text{NaF} \rightarrow$

15. Define the term:

a) Monosaccharides b) Oligosaccharides c) Polysaccharides

16. Calculate the mole fraction of ethylene glycol ($\text{C}_2\text{H}_6\text{O}_2$) in a solution containing 20% of $\text{C}_2\text{H}_6\text{O}_2$ by mass.

17. Give the formulae of the following complexes:

a) Tetraaminedichloridocobalt (III) ion

b) Amminechloridobis (ethane-1,2-diamine) cobalt (III) ion

c) Potassium trioxalatoaluminate (III)

Or

Give some limitations of valence bond theory.

18. Calculate the values of E_a and A .

19. Differentiate globular proteins and fibrous proteins.

20. What are the different types of polymers based on the structure? Give an example each.

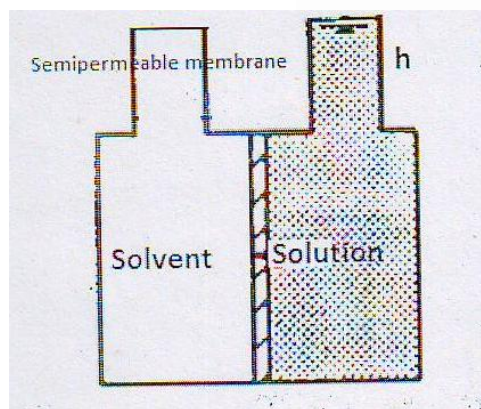
21. How are drugs classified?

22. Differentiate ideal and non-ideal solution.

23. If we apply pressure greater than the equilibrium osmotic pressure to the solution compartment shown below, pure solvent will flow from the solution to the solvent compartment.

a. What is the name of this process

b. Write an important application associated with this process. Explain



24. Give the name of the reagents to bring the following conversions:

a. Allyl alcohol to propenal

b. But-2-ene to ethanol

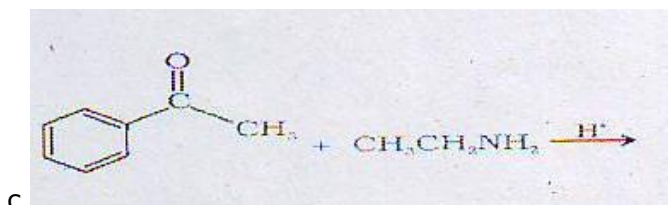
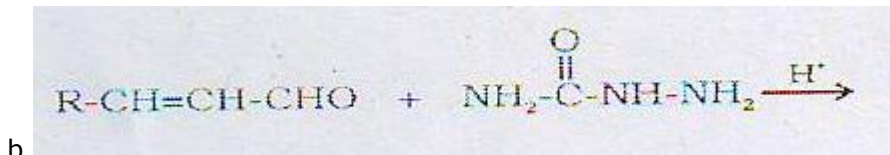
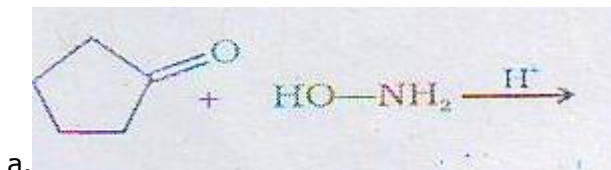
c. Cyclohexanol to cyclohexanone

d. Ethanenitrile to ethanol

e. Hexan-1-ol to hexanal

Or

Complete the reactions:



25.a) Give the important advantages of fuel cells over ordinary batteries.

b) Define molar conductivity and equivalent conductivity.

26. a) The conductivity of 0.001028 mol/L acetic acid is 4.95×10^{-5} S/cm. calculate its dissociation constant if the limiting molar conductivity for acetic acid is $390.5 \text{ S cm}^2/\text{mol}$.

b) Give a short note on nickel – cadmium cell. Give its overall reaction during discharge.