

## SAMPLE QUESTION PAPER 4

### 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.

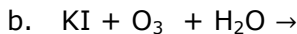
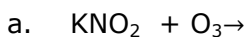
- Write the structure of 1-chloro-2,2-dimethylpropane.
- What is the effect of presence of Schottky defects on the density of the crystal?
- If a compound is formed by the elements X and Y crystallises in the cubic arrangement with X atoms at the corners of a cube and Y atoms at face centres, then give its formula of the compound?
- Give any two main functions of hormone adrenaline.
- Define co-enzyme.
- Explain brown ring test.
- Explain:
  - Electrophoresis
  - Dialysis
- A compound is formed by two elements X and Y. If the atoms of the element Y (as anions) make ccp and those of the element X (as cations) occupy all the octahedral voids, then what is the formula of the compound?

Or

An element has a body-centred cubic structure with a cell edge of 288 pm. The density of the element is  $7.2 \text{ g/cm}^3$ . How many atoms are present in 208 g of the element?

- The initial concentration of  $\text{N}_2\text{O}_5$  in the following first order reaction:  $\text{N}_2\text{O}_5 (\text{g}) \rightarrow 2 \text{NO}_2 (\text{g}) + \frac{1}{2} \text{O}_2 (\text{g})$  was  $1.24 \times 10^{-2} \text{ mol/L}$  at 318K. The concentration of  $\text{N}_2\text{O}_5$  after 60 minutes was  $0.20 \times 10^{-2} \text{ mol/L}$ . Calculate the rate constant of the reaction at 318 K.
- What conclusions can be drawn from the equations:  $P = p_1^0 + (p_2^0 - p_1^0)x_2$  ?
- Give a short note on:
  - Reimer – Tiemann Reaction.
  - Friedel Crafts Reaction.
- Show that in a first order reaction, time needed for completion of 99.9% is ten times of half- life of the reaction.

13. Complete the following reactions:



14. Differentiate between rate of reaction and reaction rate constant.

15. Explain the fact that in aryl alkyl ethers the alkoxy group activates the benzene ring towards electrophilic substitution reaction and it also directs the incoming substituents to o- and p- positions in benzene ring.

16. i. Why bithional is added to soaps?

ii. Sulpha drugs work like antibiotics, but are not antibiotics. Comment.

iii. What type of drug is phenacetin?

17. i. Define chelation.

ii. What is meant by chelating ligand?

iii. What is denticity?

Or

What are cationic complex, anionic complex and neutral complex? Give examples.

18.a) Give the sources of lead compounds.

b) Define the term 'chemotherapy'.

c) Name the macromolecules that are chosen as drug targets.

19. Write the possible sequences of the tripeptide which on complete hydrolysis gives glycine, alanine and phenylalanine.

20. What are the three ways to control the microbial diseases?

21. Explain pseudo first order reaction with an appropriate example.

22. Explain the term:

a) Electro-osmosis

b) Coagulation

23. The use of hydroelectricity is increasing day-by-day. Government is trying to reduce its dependency on thermal power plants

Now answer the following question

a. Why Government is trying to reduce its dependency on thermal power plant?

b. What values are promoted by the use of hydroelectricity?

c. Suggest two methods to promote above values.

24. Give the cause of lanthanoid contraction.

Or

Give five chemical characteristics of lanthanoids.

25. An organic compound (A) with molecular formula  $\text{C}_8\text{H}_8\text{O}$  forms an orange-red precipitate with 2,4-DNP reagent and gives yellow precipitate on heating with iodine in the presence of sodium hydroxide. It neither reduces Tollens' or Fehlings' reagent, nor does it decolourise bromine water or Baeyer's reagent. On

drastic oxidation with chromic acid, it gives a carboxylic acid (B) having molecular formula  $C_7H_6O_2$ . Identify the compounds (A) and (B) and explain the reactions involved.

Or

Write chemical equations for the following conversions:

- i.  $CH_3-CH_2-Cl$  into  $CH_3-CH_2-CH_2-NH_2$
- ii.  $C_6H_5-CH_2-Cl$  into  $C_6H_5-CH_2-CH_2-NH_2$
- iii. Benzyl alcohol to phenylethanoic acid
- iv. 4-Methylacetophenone to benzene-1,4-dicarboxylic acid

26. Calculate its resistivity, conductivity and molar conductivity, if the electrical resistance of a column of  $0.05 \text{ mol L}^{-1} NaOH$  solution of diameter 1 cm and length 50 cm is  $5.55 \times 10 \text{ ohm}$ .

Or

- a) A solution of  $CuSO_4$  is electrolysed for 10 minutes with a current of 1.5 amperes. What is the mass of copper deposited at the cathode?
- b) What are the observations made in a galvanic cell after the circuit is completed?

