

SAMPLE PAPER -2
CLASS – XI -CHEMISRTY

Time : 3 hrs.

M.Marks : 70

- 01) How many molecules of water are present in a drop of water weighing 0.05g ? (1)
- 02) Calculate the mass of a silver atom. (At. mass = 108). (1)
- 03) What must be velocity of beam of electrons if they are to display a de-Broglie wavelength of 100 Å when mass of electron = 9.1×10^{-31} kg and $h = 6.6 \times 10^{-34}$ Js? (1)
- 04) State the Uncertainty principle. (1)
- 05) Which member will have larger size and why ? Li^+ or Na^+ . (1)
- 06) What is electron affinity ? Which of the following member has higher electron affinity and why ? (2)
- 07) a) Predict the shape of ethyne in the basis of hybridization.
 b) In the formation of a compound XY_2 atom X gives an electron to each Y atom. What is the nature of bond in XY_2 ? (2)
- 08) a) What is meant by BOD ? (2)
 b) What are pesticides ?
- 09) Calculate the heat of combustion of glucose from the pesticides ? (2)
- a) $\text{C}(\text{graphite}) + \text{O}_2(\text{g}) \longrightarrow \text{CO}_2(\text{g}) \quad \Delta H = - 365 \text{ kJ.}$
- b) $\text{H}_2(\text{g}) + \frac{1}{2} \text{O}_2(\text{g}) \longrightarrow \text{H}_2\text{O}(\text{l}) \quad \Delta H = - 369 \text{ kJ.}$
- c) $6\text{C}(\text{s}) + 6\text{H}_2(\text{g}) + 3\text{O}_2(\text{g}) \longrightarrow \text{C}_6\text{H}_{12}\text{O}_6(\text{s}) \quad \Delta H = - 1169.8 \text{ kJ.}$

- 10) State and explain Hess's law of constant heat summation by taking a suitable example. (2)
- 11) 4g of NaOH are dissolved in 1 litre of solution in water. Find the pH of this solution. (2)
- 12) What is the difference in ionic product and solubility product? Give application of solubility product in group III.

OR

What is Lowry-Bronsted concept of acid and base ? Give examples.

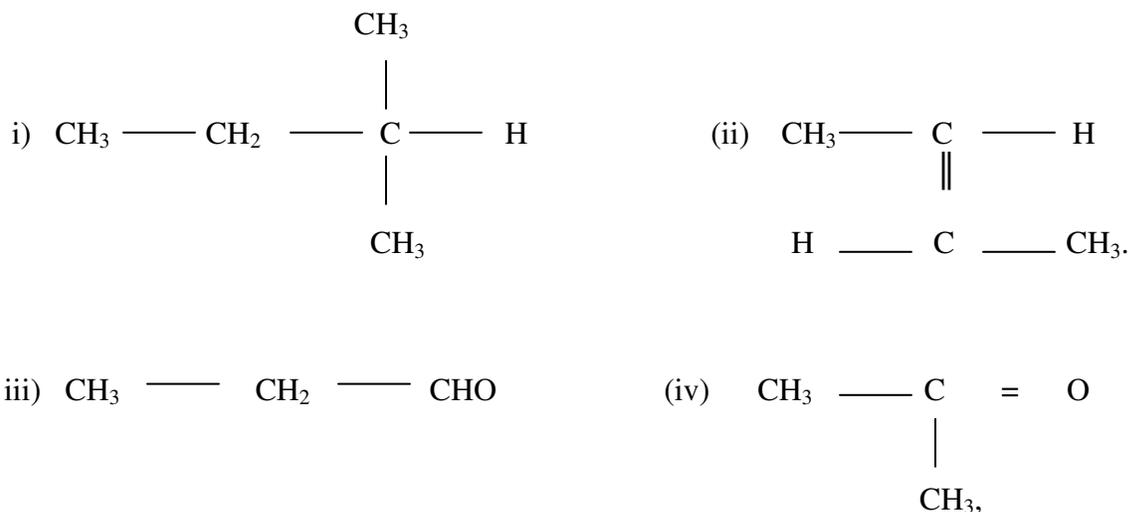
(2)

- 13) Calculate oxidation number of : (3)
- a) Cr in $\text{Cr}_2\text{O}_7^{2-}$ (b) S in $\text{Na}_2\text{S}_2\text{O}_3$ (c) C in CO_3^{2-} .

- 14) Arrange the following metals in order in which they displace each other from the solution of their salts and why ? Al, Cu, Fe, Mg and Zn. (3)
- 15) a) What happens when SiCl_4 is hydrolysed ? Give chemical equation. (3)
- b) Why is $(\text{SiF}_6)^{2-}$ known whereas $(\text{SiCl}_4)^{2-}$ not ?
- c) What happens when Sn reacts with H_2O on heating ? Give chemical equation.
- 16) a) Name three allotropes of carbon and two differences among them. (3)
- b) i) Why does Li differ from other s – block elements ?
- ii) Calculate bond order of O_2 .
- 17) Show how H_2O_2 can function both as oxidizing and reducing agent. Explain how hydrogen peroxide is used to restore the colour of old lead paintings ? (3)
- 18) a) Explain why boric acid is monobasic acid ? (3)
- b) What happens when metaboric acid is heated ? Give chemical equation.
- c) How is free energy related to equilibrium constant ?
- 19) What is meant by conjugate acid – base pair. Find conjugate acid of following. NO_2^- , CN^- , OH^- , NH_3 . (3)
- 20) How will you manufacture NaOH by Castner – Kellner cell ? Explain. Draw a neat labelled diagram. (3)
- 21) Explain the following : (3)
- a) NH_3 is liquid at room temperature.
- b) BF_3 has zero dipole moment.
- c) NH_3 has higher dipole moment than NF_3 .
- 22) Discuss important steps to extract Ag from its ore. Write chemical reactions involved (3)
- 23) What is meant by Buffer capacity ? Give two examples of acidic and basic buffer solution. (3)
- 24) Draw the structure of following. (3)
- a) 1-Bromo 3-chlorocyclohexene.
- b) 4-Bromo-5nitrohex-2-yne.
- c) 1-Chloro-5-methylhexan-3-one.

OR

Identify the type of isomerism shown by following compound. (3)



25) a) How will you detect N in organic compound ? Give chemical reactions involved. (5)

b) Calculate the molecular formula of a compound whose vapour density is 54.5 from following data. [C = 12; H = 1; Br = 80]

Carbon = 21.95%

Hydrogen = 4.58%

Bromine = 73.37%

OR

a) An aromatic compound contains 69.4% C and 5.8% H. A sample of 0.303g gave ammonia which was absorbed by 50ml of 0.05 M H_2SO_4 . The excess of acid require 25ml of 0.1 M NaOH for neutralization. Determine the formula of the compound if its molar mass is 121 g mol^{-1} .

b) How will you detect the presence of Sulphur in organic compound ?

26) a) Explain Cracking of C_8H_{18} . How can quality of petrol be improved ? (5)

Give three methods.

b) **Write short note on.**

i) Friedel – Crafts Reaction

(ii) Wurtz Reaction

(iii) Markownikoff's Rule.

