

CHEMISTRY SSC-II

Time allowed: 2:40 Hours Total Marks: 53

Note:- Answer any eleven parts from Section 'B' and any two questions from Section 'C' on the separately provided answer book. Use supplementary answer sheet i.e. Sheet-B if required. Write your answers neatly and legibly.

SECTION - B (Marks 33)

Q.2 Attempt any ELEVEN parts. The answer to each part should not exceed 3 to 4 lines. (11×3=33)

- (i) Write K_c expression of the following reactions:
- $H_2(g) + I_2(g) \rightleftharpoons 2HI(g)$
 - $N_2O_4(g) \rightleftharpoons 2NO_2(g)$
 - $PCl_5(g) \rightleftharpoons PCl_3(g) + Cl_2(g)$
- (ii) Discuss Le Chatelier's principle with an example
- (iii) Differentiate between Lewis concept and Bronsted-Lowry concept of acids and bases.
- (iv) Write three valuable applications of pH measurement.
- (v) What is a functional group? Draw structural formulas of the functional groups present in the following compounds:
- Aldehyde
 - Amine
- (vi) What happens when an unsaturated organic compound is treated with? (no equation required)
- Bromine water
 - Iodine solution
 - Dilute alkaline $KMnO_4$ Solution
- (vii) How would you prepare?
- Ethane from Ethyne
 - 1, 2-Dibromoethane from Ethene
- (viii) Draw structural formulas of the following compounds
- Glucose
 - Fructose
 - Amino acid
- (ix) Write three differences between DNA and RNA.

- (x) Acid rain has lesser pH than normal rain. Write down the balanced equations to show the formation of H_2SO_4 and HNO_3 in the acid rain.
- (xi) What is Hard water? Discuss its types.
- (xii) Explain the coagulation process in Raw water treatment.
- (xiii) Mention the sources and one harmful effect of the following pollutants.
- SO_2
 - CFC's
 - CO
- (xiv) Draw a Flow Sheet diagram for Urea manufacturing
- (xv) Explain the carbonation process in the manufacturing of Soda ash by Solvay's process.

SECTION - C

Note: Attempt any TWO questions. All questions carry equal marks. (2×10=20)

Q.3 a. Discuss the Fractional Distillation of petroleum and write names of Eight fractions obtained in this process. 02+04

b. Discuss two methods to remove permanent hardness from water. 04

Q.4 a. Write down two sources and one use of fat soluble vitamins, also write the name of a disease caused by the deficiency of each fat soluble vitamin. 08

b. Explain the depletion of ozone layer by CFC's. 02

Q.5 a. Discuss Dehydrohalogenation of Alkylhalides and Vicinal dihalides. 03+03

b. Explain the following. 02+02

i. Arrhenius concept of acids and bases.

ii. The Law of Mass action