

SECTION-A**Note:**

- 1) Attempting all MCQs is compulsory. This paper along with the OMR sheet must be returned to the superintendent after due time.
- 2) Fill the circle (A)(B)(C)(D), which one is correct with blue or black ball point in separate OMR Sheet like ●
- 3) If more than one circle in the OMR sheet is filled then no credit will be given to such answer.

I.i. Water gas is a mixture of.

- (A) $\text{CO} + \text{H}_2$ (B) C and H_2 (C) CO and H_2O (D) C and H_2O

ii. Percentage of Nitrogen in Urea is.

- (A) 14 (B) 28 (C) 46.67 (D) 60

iii. Lowest temperature in troposphere is.

- (A) 5°C (B) -5°C (C) 56°C (D) -56°C

iv. The gas(es) which is/are responsible for acid rain is/are.

- (A) SO_2 (B) NO_2 (C) CO_2 (D) All SO_2 , NO_2 , & CO_2

v. Deficiency of Vitamin A causes.

- (A) Scurvy (B) Night blindness (C) Rickets (D) Aging

vi. A large number of amino acids polymerizes into.

- (A) Vitamins (B) Carbohydrates (C) Proteins (D) Lipids

vii. Dehydro halogenation of Alkyl Halide is.

- (A) Removal of hydrogen (B) Removal of Halogen (C) Removal of hydrogen and halogen (D) Addition of hydrogen and halogen

viii. Unsaturated Hydrocarbon is.

- (A) C_3H_8 (B) C_2H_6 (C) C_3H_6 (D) CH_4

ix. The general formula of carboxylic acid is.

- (A) $\text{R}-\text{X}$ (B) $\begin{array}{c} \text{O} \\ \parallel \\ \text{R}-\text{C}-\text{OH} \end{array}$ (C) $\begin{array}{c} \text{O} \\ \parallel \\ \text{R}-\text{C}-\text{R} \end{array}$ (D) $\text{R}-\text{OH}$

x. Which of the following is a Lewis base.

- (A) HCl (B) AlCl_3 (C) BF_3 (D) F^-

xi. Salt which is used as antacid and laxative is.

- (A) Copper Sulphate (B) Sodium Chloride (C) Sodium Sulphate (D) Magnesium Sulphate or Epsom salt

xii. The equilibrium constant (K_c) is equal to.

- (A) $K_f - K_r$ (B) $K_f + K_r$ (C) $\frac{K_f}{K_r}$ (D) $\frac{K_r}{K_f}$

Note: Time allowed for section B and C is 2 hours and 40 minutes.

SECTION "B"

Marks: 32

II. Attempt any EIGHT Parts out of the following. Each Part carries equal marks.

- i. Calculate the unit of equilibrium constant K_c for the following reaction.
$$\text{N}_2\text{O}_4(\text{g}) \rightleftharpoons 2 \text{NO}_2(\text{g})$$
- ii. Calculate the PH and POH of 0.5M solution of HCl?
- iii. Define functional group? Give two examples of functional group containing oxygen.
- iv. How would you test that alkene undergo an addition reaction?
- v. Briefly describe the sources and deficiency symptoms of Vitamin A?
- vi. Identify different sources of Protein? Also list the four uses of protein?
- vii. What are the adverse effects of global warming?
- viii. Describe briefly how ozone layer is depleted in the atmosphere?
- ix. Explain briefly occurrence of water?
- x. Make the distinction between soft and hard water.
- xi. Write down at least four uses of Urea?

SECTION "C"

Marks: 21

Note: Attempt any THREE questions of the following. Each question carries equal Marks.

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| III. | (a) Define law of mass action and derive an expression for the equilibrium constant. | 4 |
| | (b) Write down three types of salts with examples. | 3 |
| IV. | (a) Write down general characteristics of organic compounds in detail. | 4 |
| | (b) Write balanced equation for the following. | 3 |
| | (i) Ethene with Bromine (ii) Ethene with hydrogen (iii) Ethene with KMnO_4 | |
| V. | (a) Distinguish between monosaccharides, disaccharides and polysaccharides with examples. | 3 |
| | (b) Write down Effect of Acid rain on. | 4 |
| | (i) Fishes (ii) Plants (iii) Material (iv) Human | |
| VI. | (a) Write down reaction of water with. | 4 |
| | (i) K (ii) Cl_2 (iii) CaO (iv) CH_3COONa | |
| | (b) Write down basic reactions for manufacture of sodium carbonate by Solvay's process. | 3 |