

NOTE: Four possible answers A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that question with Marker or Pen ink. Cutting or filling two or more circles will result in zero mark in that question.

Q1.

12

- Which one of the following salts make the water permanently hard?
(A) Na_2CO_3 (B) NaHCO_3 (C) $\text{Ca}(\text{HCO}_3)_2$ (D) CaSO_4
- The gas which is used to destroy harmful bacteria in water is:
(A) iodine (B) chlorine (C) fluorine (D) bromine
- Which one of the following is not a fraction of petroleum?
(A) kerosene oil (B) diesel oil (C) alcohol (D) petrol
- Equilibrium constant expression for the reaction $2\text{A} + \text{B} \rightleftharpoons 3\text{C}$
(A) $\frac{[\text{2A}][\text{B}]}{[\text{3C}]}$ (B) $\frac{[\text{A}]^2[\text{B}]}{[\text{C}]^3}$ (C) $\frac{[\text{3C}]}{[\text{2A}][\text{B}]}$ (D) $\frac{[\text{C}]^3}{[\text{A}]^2[\text{B}]}$
- For a reaction between PCl_3 and Cl_2 to form PCl_5 , the unit of K_c is:
(A) mol dm^{-3} (B) mol dm^3 (C) $\text{mol}^{-1} \text{dm}^3$ (D) $\text{mol}^{-1} \text{dm}^{-3}$
- Which one is a Lewis base?
(A) H^+ (B) BF_3 (C) AlCl_3 (D) NH_3
- A reaction between an acid and a base produces:
(A) salt and an acid (B) salt and a base (C) salt and water (D) salt and gas
- General formula of alkyl radicals is:
(A) C_nH_{2n} (B) $\text{C}_n\text{H}_{2n+1}$ (C) $\text{C}_n\text{H}_{2n+2}$ (D) $\text{C}_n\text{H}_{2n-1}$
- Which one of the following compounds is a saturated hydrocarbon?
(A) methane (B) ethyne (C) propene (D) propyne
- Protein makes up percentage of dry weight of animal cell:
(A) 25% (B) 50% (C) 75% (D) 100%
- Which one of the following is tasteless?
(A) starch (B) glucose (C) fructose (D) sucrose
- Acid rain affects the aquatic life by clogging fish gills because of:
(A) lead (B) chromium (C) mercury (D) aluminium

Roll No.(in Figures): (in Words):

Maximum Marks: 48

SUBJECTIVE TYPE

Time Allowed :1.45 Hours

(PART - I)

Q2. Write short answers to any FIVE (5) questions. 5×2=10

- (i) Write down two characteristics of irreversible reactions.
- (ii) Define law of mass action.
- (iii) How is dynamic equilibrium established?
- (iv) If a reaction has large value of K_c , will it go to completion and why?
- (v) Write two physical properties of bases.
- (vi) Define Lewis concept of acids and bases.
- (vii) Write two uses of pH.
- (viii) Define normal salts.

Q3. Write short answers to any FIVE (5) questions. 5×2=10

- (i) What is isomerism?
- (ii) Write classification of coal.
- (iii) What are aromatic compounds? Give an example.
- (iv) Define unsaturated hydrocarbons with examples.
- (v) Write one important use of each (a) Chloroform (b) carbon tetra chloride
- (vi) Define carbohydrates. Write its general formula.
- (vii) Draw the structural formula of glucose.
- (viii) What is the function of DNA?

Q4. Write short answers to any FIVE (5) questions. 5×2=10

- (i) Define ozone and ozone hole.
- (ii) Give two effects of ozone depletion.
- (iii) Write two effects of SO_2 .
- (iv) Define soft water and hard water.
- (v) Write two uses of pesticides.
- (vi) Define minerals and ores.
- (vii) How is ammonia prepared by Solvay's process?
- (viii) Write uses of kerosene oil.

(PART - II)

Note: Attempt any TWO questions. 2×9=18

Q5. (a) Write down the five macroscopic characteristics of dynamic equilibrium. 5

(b) Explain the Lewis concept of acids and bases with the help of examples. 4

Q6. (a) Write any five uses of ethene (ethylene) 5

(b) Define vitamins, write their importance. 4

Q7. (a) How crude oil is refined? Explain two important fractions of petroleum along with their usage. 5

(b) Explain the water pollution because of industrial waste. 4

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Q1.

12

- The bond angle between H-O-H in water is:
(A) 104.3° (B) 104.5° (C) 104.6° (D) 104.7°
- Which one of the following salts makes the water permanently hard?
(A) CaSO_4 (B) $\text{Ca}(\text{HCO}_3)_2$ (C) NaHCO_3 (D) Na_2CO_3
- Formula of urea is:
(A) $\text{NH}_2\text{COONH}_4$ (B) $\text{NH}_2\text{COONH}_2$ (C) NH_2CONH_4 (D) NH_2CONH_2
- Units of K_c in the reaction $\text{H}_{2(g)} + \text{I}_{2(g)} \rightleftharpoons 2\text{HI}_{(g)}$ are:
(A) mol dm^{-3} (B) $\text{mol}^{-1} \text{dm}^{-3}$ (C) $\text{mol}^2 \text{dm}^{-3}$ (D) no units
- Colour of iodine is:
(A) green (B) purple (C) red (D) yellow
- Which is Lavoisier acid?
(A) CO_2 (B) H_2SO_4 (C) HCl (D) NH_3
- Which ion is the conjugate base of sulphuric acid?
(A) HSO_3^- (B) HSO_4^- (C) S^{2-} (D) SO_3^{2-}
- The general formula of alkyl radical is:
(A) $\text{C}_n\text{H}_{2n+2}$ (B) $\text{C}_n\text{H}_{2n+1}$ (C) $\text{C}_n\text{H}_{2n-2}$ (D) C_nH_{2n}
- Halogenation of methane does not produce:
(A) carbon black (B) chloroform (C) chloromethane (D) carbon tetrachloride
- Which one of the following is disaccharide?
(A) fructose (B) glucose (C) starch (D) sucrose
- Which one of the following vitamins is water soluble?
(A) A (B) C (C) D (D) E
- Normally rain water is weakly acidic because of:
(A) CO_2 (B) NO_2 (C) SO_3 (D) SO_2

Roll No.(in Figures): (in Words):

Maximum Marks: 48

SUBJECTIVE TYPE

Time Allowed :1.45 Hours

(PART - I)

Q2. Write short answers to any FIVE (5) questions. 5×2=10

- (i) What do you mean by dynamic equilibrium?
- (ii) Write two macroscopic characteristics of dynamic equilibrium.
- (iii) Define law of mass action.
- (iv) How direction of a reversible reaction can be predicted?
- (v) Define adduct.
- (vi) Write down two uses of pH.
- (vii) Write down any four types of salts.
- (viii) State Lewis concept of acids and bases.

Q3. Write short answers to any FIVE (5) questions. 5×2=10

- (i) How Wohler prepared urea?
- (ii) What is destructive distillation?
- (iii) Define functional group with the help of an example.
- (iv) Why are the alkenes called olefins?
- (v) Write the molecular and structural formula of ethyne.
- (vi) Write two characteristics of monosaccharides.
- (vii) Write general formula of amino acid.
- (viii) Define carbohydrates.

Q4. Write short answers to any FIVE (5) questions. 5×2=10

- (i) How the temperature of atmosphere is maintained?
- (ii) Define global warming.
- (iii) How aquatic life is affected by acid rain?
- (iv) What is difference between temporary hardness and permanent hardness of water?
- (v) Why non-polar compounds are insoluble in water?
- (vi) Define metallurgy.
- (vii) What is difference between slag and matte?
- (viii) Write two uses of petroleum ether.

(PART - II)

Note: Attempt any TWO questions. 2×9=18

- Q5. (a) Define reversible reaction. Write down the four macroscopic characteristics of reverse reaction. 5**
- (b) Give the uses of following acids (two each) (i) H₂SO₄ (ii) HNO₃ (iii) HCl (iv) CH₃COOH 4**
- Q6. (a) What is acetylene? Give two methods for the preparation of alkynes. 5**
- (b) Describe four sources and uses of lipids. 4**
- Q7. (a) Write a note on fractional distillation of petroleum. Also write the uses of two petroleum fractions. 5**
- (b) Write down four properties of water. 4**