Q1.

12

1. Night blindness is caused due to the deficiency of which vitamin?

   (A) vitamin A   (B) vitamin E   (C) vitamin C   (D) vitamin D

2. Photosynthesis process produces:

   (A) starch   (B) cellulose   (C) fructose   (D) glucose

3. Percentage of CO_2 by volume in dry air is:

   (A) 0.03%   (B) 0.93%   (C) 20.94%   (D) 78.09%

4. At which temperature maximum density of water is 1 gcm^{-3}.

   (A) 0°C   (B) 4°C   (C) 80°C   (D) 100°C

5. Which disease causes bone and tooth damage?

   (A) fluorosis   (B) hepatitis   (C) cholera   (D) jaundice

6. Which one of the following is not a fraction of petroleum?

   (A) kerosene oil   (B) diesel oil   (C) alcohal   (D) petrol

7. For a reaction between PCl_3 and Cl_2 to form PCl_5, the unit of K_c is:

   (A) $mol\ dm^{-3}$ (B) $mol^{-1}\ dm^{-3}$ (C) $mol^{-1}\ dm^3$ (D) $mol\ dm^3$

8. The colour of iodine is:

   (A) orange   (B) purple   (C) black   (D) white

9. Conjugate base of H_2SO_4 (sulphuric acid) is:

   (A) SO_4^{-2} (B) SO_4^{-1} (C) SO_4 (D) HSO_4^-

10. Lactic acid is found in:

    (A) lemon   (B) sour milk   (C) orange   (D) apple

11. The ability of carbon atoms to form chains is called:

    (A) isomerism   (B) catenation   (C) resonance   (D) condensation

12. Which one of the following is a saturated hydrocarbon?

    (A) C_2H_4 (B) C_3H_6 (C) C_4H_8 (D) C_5H_{12}

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. $5 \times 2 = 10$

(i) Which type of reaction does not go to completion?

(ii) Define complete reaction.

(iii) What is meant by chemical equilibrium state?

(iv) Write two macroscopic characteristics of forward reaction.

(v) Define petroleum.

(vi) Define Lewis acid and give one example.

(vii) Write the uses of calcium hydroxide.

(viii) Define pH. What is the pH of pure water?

Q3. Write short answers to any FIVE (5) questions. $5 \times 2 = 10$

(i) What is meant by destructive distillation?

(ii) Define anthracite and give its one use.

(iii) How organic compounds are used as medicines?

(iv) What are saturated hydrocarbons? Give an example.

(v) How hydrogenation in alkenes proceed? Write its chemical equation.

(vi) What is the difference between essential and non essential amino acids?

(vii) Define monosaccharides and give one example.

(viii) What are fatty acids? Give one example.

Q4. Write short answers to any FIVE (5) questions. $5 \times 2 = 10$

(i) What is acid rain?

(ii) Why is CO_2 responsible for heating up atmosphere?

(iii) How does ozone layer form in stratosphere?

(iv) How does water rise in plants?

(v) Why water dissolves sugar and alcohol?

(vi) Name the various metallurgical operations.

(vii) What is the principle of Solvay's process?

(viii) Write down the names of four fractions obtained by fractional distillation of residual oil.

(PART - II)

Note: Attempt any TWO questions. $2 \times 9 = 18$

Q5. (a) What is meant by reversible reaction? Explain with the help of an example.   5

    (b) Describe any four characteristic properties of acids.   4

Q6. (a) Write down five physical properties of alkenes.   5

    (b) Give four uses of proteins.   4

Q7. (a) Write a detailed note on smelting and bessemerization with an example.   5

    (b) Describe the effects of using polluted water.   4

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.

1. The heat capacity of water is:

(A) $4.2 \text{ KJg}^{-1}\text{K}^{-1}$ (B) $4.2 \text{ Jg}^{-1}\text{K}^{-1}$ (C) $2.4 \text{ KJg}^{-1}\text{K}^{-1}$ (D) $2.4 \text{ Jg}^{-1}\text{K}^{-1}$

2. What is added to remove permanent hardness?

(A) soda lime   (B) lime water   (C) quick lime   (D) sodium zeolite

3. Matte is a mixture of:

(A) Cu_2S and FeO (B) FeS and CuO (C) Cu_2O and FeO (D) Cu_2S and FeS

4. Units of K_c in the reaction $H_{2(g)} + I_{2(g)} \rightleftharpoons 2HI_{(g)}$ are:

(A) mol dm^{-3} (B) $\text{mol}^{-1} \text{dm}^{-3}$ (C) $\text{mol}^2 \text{dm}^{-3}$ (D) no units

5. If $Q_c < K_c$, reaction proceeds:

(A) forward   (B) reverse   (C) equilibrium   (D) both sides

6. Which is lavoisier acid?

(A) HCl (B) H_2SO_4 (C) CO_2 (D) NH_3

7. Which is conjugate acid of HPO_4^{2-}?

(A) PO_4^{3-} (B) $H_2PO_4^{2-}$ (C) H_3PO_4 (D) $H_2PO_4^{-}$

8. The percentage of methane in natural gas is:

(A) 60%   (B) 70%   (C) 85%   (D) 98%

9. The chemical formula of chloroform is:

(A) CH_3Cl (B) CH_2Cl_2 (C) $CHCl_3$ (D) CCl_4

10. The most important oligo saccharid is:

(A) sucrose   (B) glucose   (C) fructose   (D) maltose

11. Which one of the following is a fat soluble vitamin?

(A) A   (B) E   (C) K   (D) all

12. Which gas is called green house gas?

(A) CO_2 (B) CO (C) N_2 (D) O_3

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) Define irreversible reaction and give an example.

(ii) What is meant by chemical equilibrium state?

(iii) Describe two macroscopic characteristics of forward reaction.

(iv) Why the reversible reactions do not go to completion?

(v) Write down the formulas of the following.

    (a) nitric acid   **(b)** phosphoric acid   **(c)** calcium hydroxide   **(d)** potassium hydroxide

(vi) What is heart burning?

(vii) Write the uses of pH.

(viii) How many water of crystallization molecules are present in the following:

    (a) $CuSO_4.5H_2O$ **(b)** $CaSO_4.H_2O$

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

(i) What is coke? Write its use.

(ii) Why are organic compounds useful as clothing?

(iii) Which compounds are called amines? Give two examples.

(iv) What are saturated hydrocarbons? Give an example

(v) Define closed chain hydrocarbons.

(vi) What is the difference between glucose and fructose?

(vii) Write two uses of proteins.

(viii) Write the function of RNA.

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

(i) What is meant by ozone hole?

(ii) Differentiate between primary and secondary air pollutants.

(iii) State two effects of SO_2 gas.

(iv) Differentiate between soft and hard water.

(v) What is the reason of cholera and why is it fatal?

(vi) What role is played by pine oil in the froth flotation process?

(vii) Write the names of various metallurgical operations.

(viii) Differentiate between diesel oil and fuel oil.

(PART - II)

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

Q5. (a) Compare the macroscopic characteristics of forward and reverse reaction. Write an example of

    reverse reaction.   5

    (b) Write the uses of any four bases.   4

Q6. (a) Explain oxidation of alkenes.   5

    (b) Explain that amino acids are building blocks of proteins.   4

Q7. (a) Define smelting. Explain the process of smelting. Also draw figure.   5

    (b) Write notes on jaundice and cholera.   4