Q1.

12

1. Which one of the following diseases causes severe diarrhea and can be fatal?

(A) jaundice   (B) dysentary   (C) cholera   (D) typhoid

2. Which gas protects the earth from ultraviolet radiations?

(A) CO_2 (B) SO_2 (C) NO_x (D) O_3

3. Pentahydroxy aldehyde is also called as:

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

4. General formula of alkane is:

(A) C_nH_{2n+2} (B) C_nH_{2n-2} (C) C_nH_{2n+1} (D) C_nH_{2n}

5. Which one of the following is a Lewis base?

(A) NH_3 (B) BF_3 (C) H^+ (D) $A\ell C\ell_3$

6. For a reaction between $PC\ell_3$ and $C\ell_2$ to form $PC\ell_5$ the units of Kc are.

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

7. Matte is a mixture of:

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

8. Which one of the following gases is used to destroy harmful bacteria in water?

(A) iodine   (B) chlorine   (C) fluorine   (D) bromine

9. Deficiency of vitamin-D causes _____ disease.

(A) night blindness   (B) rickets   (C) eye inflammation   (D) hepatitis

10. The reduction of alkyl halides takes place in the presence of:

(A) Zn/HCl   (B) Na/HCℓ (C) Mg/HCℓ (D) Cu/HCℓ

11. The natural source of formic acid is:

(A) citrus fruits   (B) sour milk   (C) stings of bees   (D) rancid butter

12. Reactions which have comparable amount of reactants and products at equilibrium state have.

(A) very small K_C value   (B) very large K_C value   (C) moderate K_C value   (D) $K_C = 0$

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)   How direction of reaction can be predicted?

(ii)   What is irreversible reaction? Write one characteristic of it.

(iii) What is meant by active mass? Also write its unit.

(iv)   Write two characteristics of reversible reaction.

(v)   Write two examples of Lewis acid.

(vi)   Write two examples of Lewis base.

(vii) Write two examples of mineral acids.

(viii) What is the source of the following.   i. Citric acid   ii. Lactic acid

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

(i)   Define heterocyclic compounds with an example.

(ii)   Give two uses of organic compounds.

(iii) Define functional group with an example.

(iv)   Define saturated hydrocarbons. Write their general formula.

(v)   Give two physical properties of alkynes.

(vi)   Write two properties of monosaccharide's.

(vii) What is the difference between oil and ghee?

(viii) Write the sources and uses of vitamin-D.

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

(i)   Write down two harmful effects of SO_2.

(ii)   Write down the names of two secondary pollutants.

(iii) Why is it advised to switch off coal or gas heater.

(iv)   Write two physical properties of water.

(v)   Write down the causes of hardness in water.

(vi)   Write two fractions found in residual oil.

(vii) Define minerals.

(viii) Why a small amount of coke is used in smelting process?

(PART - II)

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

Q5. (a) Derive equilibrium constant expression for a general reversible chemical reaction.   5

(b) Write down uses of any four acids.   4

Q6. (a) Explain halogenation of alkanes.   5

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

Q7. (a) What is urea? Write raw material and three steps for its preparation.   5

(b) Write four general properties of water.   4

Q1.

12

1. Temporary hardness of water can be removed by adding.

(A) lime stone (B) washing soda (C) slaked lime (D) NH_3

2. Which one of the following is a water soluble vitamin?

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

3. About _____ % traces of acetylene are present in coal gas.

(A) 0.06 (B) 0.07 (C) 0.08 (D) 0.09

4. In the beginning the rate of reverse reaction is.

(A) fast (B) very fast (C) moderate (D) negligible

5. A reaction between an acid and base produces.

(A) salt and gas (B) salt and water (C) salt and acid (D) salt and base

6. Number of amino acids in proteins is:

(A) 1000 (B) less than 10,000 (C) more than 10000 (D) 2000

7. The conjugate acid of HPO_4^{2-} is:

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

8. The quantity of water fit for drinking on the earth is _____ %.

(A) 0.2 (B) 0.4 (C) 0.5 (D) 0.6

9. The substances formed during the chemical reaction are called.

(A) products (B) reactants (C) radicals (D) elements

10. Coal gas is mixture of:

(A) CO, CH_4, CO_2 (B) CO, H_2, CO_2 (C) CO, CH_4 (D) CO, CH_4, H_2

11. Urea is a nitrogenous fertilizer. It consists of _____ % nitrogen.

(A) 26.6 (B) 46.6 (C) 56.6 (D) 66.6

12. _____ gas is the cause of global warming.

(A) SO_2 gas (B) NO_2 gas (C) O_2 gas (D) CO_2 gas

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. Give one example.

(ii) Complete the following equations:

    (a) $CaCO_3 \rightleftharpoons$ (b) $H_2 + I_2 \rightleftharpoons$

(iii) What is equilibrium constant?

(iv) What is meant by the extent of a reaction?

(v) Why BF_3 behaves as a lewis acid?

(vi) Write down two uses of nitric acid.

(vii) Define complex salts. Give on example.

(viii) Write down two uses of pH.

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

(i) Define condensed formula and give example.

(ii) Write names of four types of coal.

(iii) Write general formula of carboxyl group and give example.

(iv) Write the name and molecular formula of the simplest alkyne.

(v) Write two uses of Ethene.

(vi) Write two important usages of carbohydrates for our body.

(vii) Write the names of fat soluble vitamins.

(viii) What are the advantages of water soluble vitamins?

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

(i) What is troposphere and where does it exist in atmosphere?

(ii) What is meant by green house effect?

(iii) What are primary pollutants of air? Give an example.

(iv) What is difference between soft water and hard water?

(v) Write two effects of water pollution.

(vi) Write two methods for the prevention of waterborne diseases.

(vii) What is meant by gangue?

(viii) What is blister copper?

(PART - II)

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

Q5. (a) State the Law of Mass Action and derive the expression for equilibrium constant for a general reaction.   5

    (b) Describe the uses of any four acids.   4

Q6. (a) Write down five sources of Alkanes.   5

    (b) Explain the sources and uses of lipids.   4

Q7. (a) Write the five advantages of Solvay's process.   5

    (b) Explain the methods to remove temporary hardness.   4