Q1.   **12**

1. **Unit of Active Mass is:**

   (A) $mol\ dm^{-3}$ (B) $mol\ dm^{-2}$ (C) $mol\ dm^{-1}$ (D) $mol\ dm$

2. **A reaction between an Acid and a Base produces:**

   (A) Salt and Gas   (B) Salt and Acid   (C) Salt and Water   (D) Salt and Base

3. **Acetic Acid is used for:**

   (A) Making Explosives (B) Flavoring Food   (C) Etching Designs   (D) Cleaning Metals

4. **Correct Equilibrium constant expression for the given reaction is:** $2A_{(g)} + B_{(g)} \rightleftharpoons 3C_{(g)}$

   (A) $\dfrac{[2A][B]}{[3C]}$ (B) $\dfrac{[A]^2[B]}{[C]^3}$ (C) $\dfrac{[3C]}{[2A][B]}$ (D) $\dfrac{[C]^3}{[A]^2[B]}$

5. **Pitch is Black Residue of this:**

   (A) Coke   (B) Coal tar   (C) Coal   (D) Coal Gas

6. **Glucose is:**

   (A) Hexahydroxy Aldehyde   (B) Hyxahydroxy Ketone

   (C) Pentahydroxy Aldehyde   (D) Pentahydroxy Ketone

7. **Tasteless Carbohydrate is:**

   (A) Starch   (B) Glucose   (C) Fructose   (D) Sucrose

8. **Dehydration of Alcohols can be carried out with:**

   (A) NaOH   (B) KOH   (C) H_2SO_4 (D) HCl

9. **Just above the Earth' Surface is:**

   (A) Mesosphere   (B) Stratosphere   (C) Thermosphere   (D) Troposphere

10. **Matte is a mixture of:**

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

11. **The temperature at which water has maximum Density is:**

    (A) $0°C$ (B) $4°C$ (C) $100°C$ (D) $10°C$

12. **Temporary Hardness is because of:**

    (A) $Ca(HCO_3)_2$ (B) $CaCO_3$ (C) $MgCO_3$ (D) $MgSO_4$

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.

(ii) Write the equilibrium constant expression for the reaction: $N_{2(g)} + 3H_{2(g)} \rightleftharpoons 2NH_{3(g)}$.

(iii) What represents the very small value of K_c for a reaction?

(iv) Why at Equilibrium State, reaction does not stop?

(v) Define Acid and Base according to Lewis Concept.

(vi) Write down any two uses of Acetic Acid.

(vii) What are Complex Salts?

(viii) Write two uses of Calcium Chloride.

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

(i) What is meant by Destructive Distillation of Coal?

(ii) What are Heterocyclic Compounds? Give an example.

(iii) What is Vital Force Theory? Who presented this theory?

(iv) What are Hydrocarbon Compounds? Write two examples.

(v) Write two physical properties of Alkanes.

(vi) Write two characteristics of Monosaccharide's.

(vii) Write two sources and two uses of Lipids.

(viii) What is meant by Deoxyribonucleic Acid (DNA)?

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

(i) What is the Temperature Range of Troposphere and Mesosphere?

(ii) Write the names of two Secondary Pollutants.

(iii) Write two effects of Global Warming.

(iv) What are the two causes of Permanent Hardness of Water?

(v) What are the two differences between Biodegradable and Non-biodegradable Substances?

(vi) What is the Principle of Solvay's Process?

(vii) What is the difference between Crude Oil and Residual Oil?

(viii) What are the two advantages of Solvay's Process?

(PART - II)

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

Q5. (a) Define Static Equilibrium and give four differences between Forward Reaction and Reverse

Reaction.   5

(b) What is meant by Acidic and Basic Salts? Give examples of each.   4

Q6. (a) What are saturated Hydrocarbons? Give methods of preparation of Saturated Hydrocarbons.   5

(b) Write a note on Oligosaccharides and Polysaccharides.   4

Q7. (a) Write a detailed note on manufacturing of Urea.   5

(b) Write four characteristics of Water.   4

Q1.

12

1. Which Acid is found in Sour Milk:

   (A) Uric Acid   (B) Formic Acid   (C) Tartaric Acid   (D) Lactic Acid

2. If $Q_c > K_c$ what will be the direction of reaction:

   (A) Forward   (B) Reverse   (C) Equilibrium state   (D) In no Direction

3. The units of Molar Concentration are:

   (A) $mol\ dm^{-3}$ (B) $ml\ dm^{-2}$ (C) $mol\ dm^{-1}$ (D) $mol\ dm^3$

4. Molecular Formula of Mohr's Salt is:

   (A) $ZnSO_4$

   (C) NaH_2PO_4

   (B) $FeSO_4 \cdot (NH_4)_2SO_4 \cdot 6H_2O$

   (D) $K_2SO_4 \cdot Fe_2(SO_4)_3 \cdot 24H_2O$

5. Which one of the following is Tasteless:

   (A) Sucrose   (B) Starch   (C) Glucose   (D) Fructose

6. The other name of Alkanes is:

   (A) Paraffins   (B) Olefins   (C) Halogens   (D) Acetylene

7. The ability of Carbon Atoms to form chain is called:

   (A) Isomerism   (B) Resonance   (C) Catenation   (D) Condensation

8. Deficiency of which Vitamin causes Rickets:

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

9. Temporary Hardness is because of:

   (A) $CaCO_3$ (B) $MgCO_3$ (C) $MgSO_4$ (D) $Ca(HCO_3)_2$

10. Which disease is caused by an excess of Bile Pigments in the blood:

    (A) Jaundice   (B) Typhoid   (C) Cholera   (D) Fluorosis

11. Normally Rain water is weakly Acidic because of:

    (A) O_3 (B) CO_2 (C) O_2 (D) N_2

12. Crude oil is heated in the furnace upto:

    (A) 300°C   (B) 350°C   (C) 400°C   (D) 450°C

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

Maximum Marks: 48   **SUBJECTIVE TYPE**   Time Allowed :1.45 Hours

(PART - I)

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

i) Define Reactants and Products.

ii) Why Reversible Reactions do not go to Completion?

iii) Define Chemical Equilibrium State.

iv) What is Static Equilibrium? Give example.

v) Write two uses of Sodium Carbonate (Washing Soda).

vi) Which species can act as Bases according to Lewis?

vii) Write names of two Acids present in Apple.

viii) Prove that Water is an Amphoteric Compound.

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

i) Define Coal Tar and write its uses.

ii) How is an Alcohol tested?

iii) Describe the importance of Natural Gas.

iv) How Alkyl Halides are reduced?

v) Define Unsaturated Hydrocarbons.

vi) Define Polysaccharides and write two properties.

vii) Shortly brief that Plants are source of Oil.

viii) Write down sources of Vitamin A.

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

(i) Briefly explain Stratosphere.

(ii) What is meant by Global Warming?

(iii) Write two bad effects of Acid Rain.

(iv) Write one method for removal of Temporary Hardness in Water.

(v) What is Cholera? Write its one symptom.

(vi) What is Froth Floatation Process?

(vii) Write two advantages of Solvay's Process.

(viii) Write two uses of Kerosine Oil.

(PART - II)

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

Q5. (a) What is the importance of Equilibrium Constant?   5

    (b) Write down four differences between Acids and Bases.   4

Q6. (a) Write five uses of Acetylene.   5

    (b) Write four uses of Carbohydrates.   4

Q7. (a) Write a detail note on important fractions of Petroleum.   5

    (b) Explain the methods of removing Permanent Hardness in water.   4