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

1. The colour of hydrogen iodide gas is:

   (A) black   (B) purple   (C) blue   (D) colourless

2. Which one gas was prepared by Haber's process?

   (A) hydrogen   (B) nitrogen   (C) ammonia   (D) methane

3. Which one is the Lewis base?

   (A) $AlCl_3$ (B) H^+ (C) $:NH_3$ (D) BF_3

4. Malic acid is found in:

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

5. Molecular formula of butane is:

   (A) C_4H_8 (B) C_4H_{10} (C) C_4H_{12} (D) C_4H_6

6. Main component of natural gas is:

   (A) methane   (B) propane   (C) butane   (D) pentane

7. Formula of palmitic gas is:

   (A) $C_{15}H_{31}COOH$ (B) $C_{17}H_{33}COOH$ (C) $C_{17}H_{35}COOH$ (D) $C_{17}H_{37}COOH$

8. Deficiency of vitamin D causes:

   (A) scurvy   (B) anemia   (C) night blindness   (D) rickets

9. The major constituents of troposphere are Nitrogen and:

   (A) oxygen   (B) hydrogen   (C) carbon dioxide   (D) argon

10. Which one of the following ions does not cause hardness in water:

    (A) Ca^{2+} (B) Mg^{2+} (C) SO_4^{2-} (D) Na^+

11. Nature of water is:

    (A) polar   (B) non-polar   (C) acidic   (D) basic

12. _____ is a fraction of residual oil.

    (A) kerosene oil   (B) asphalt   (C) petrol   (D) petroleum ether

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 two characteristics of irreversible chemical reaction.

(ii)   Define chemical equilibrium state.

(iii) If $Q_c < K_c$ then predict the direction of chemical reaction.

(iv) Write equilibrium constant expression for the given reaction. $H_{2(g)} + I_{2(g)} \rightleftharpoons 2HI_{(g)}$

(v)   Define conjugate acid and conjugate base.

(vi) Write two properties of salts.

(vii) Define amphoteric compounds and give on example.

(viii)Write down two uses of sodium carbonate.

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

(i)   Define condensed formula and give an example.

(ii)   Compare any one property of organic compounds with inorganic compounds.

(iii) Define ammonical liquor and give its uses.

(iv) Define saturated hydrocarbons and also write its general formula.

(v)   Write down two uses of chloroform.

(vi) Give balanced equation for formulation of glucose.

(vii) Write down the sources of vitamin D.

(viii)How is gelatin obtained?

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

(i)   Write the composition of dry air.

(ii)   Write names of any two secondary pollutants.

(iii) Define Acid Rain.

(iv) Write two reasons of the importance of water.

(v)   Write two effects of water pollution.

(vi) Define Metallurgy.

(vii) What is blister copper?

(viii)What is difference between ores and minerals.

(PART - II)

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

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

     (b)   Write any four uses of bases.   4

Q6. (a)   Define substitution reaction. Explain it with reference to halogenation of alkanes.   5

     (b)   Give the importance of vitamins.   4

Q7. (a)   Give detailed account of Ammonia Solvay's Process along with its flow chart.   5

     (b)   Write four effects of Hard water.   4

Q1.

12

1. Dehydration of alcohols is carried out with:

   (A) H_3PO_4 (B) HCl (C) HNO_3 (D) H_2SO_4

2. Formula of stearic acid is:

   (A) $C_{15}H_{31}COOH$ (B) $C_{17}H_{33}COOH$ (C) $C_{17}H_{35}COOH$ (D) $C_{17}H_{37}COOH$

3. Fatty acids are the building blocks of:

   (A) lipids   (B) protein   (C) glucose   (D) vitamin

4. Chemical compound used in Clark's method is:

   (A) $Ca(OH)_2$ (B) $NaOH$ (C) HCl (D) CaO

5. Percentage of CO_2 by volume present in dry air is:

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

6. Maximum density of water at 4°C is:

   (A) $0.5g\ cm^{-3}$ (B) $1.0g\ cm^{-3}$ (C) $1.5g\ cm^{-3}$ (D) $2.0g\ cm^{-3}$

7. One of the following is used as jet fuel:

   (A) lubricating oil   (B) fuel oil   (C) diesel oil   (D) kerosene oil

8. Guldberg and Waage put forward Law of Mass Action in:

   (A) 1859 A.D   (B) 1869 A.D   (C) 1879 A.D   (D) 1889 A.D

9. The colour of iodine gas is:

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

10. Lactic Acid is found in:

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

11. pH of neutral substances is always equal to:

    (A) 0   (B) 5   (C) 7   (D) 14

12. Percentage quantity of carbon in peat is:

    (A) 60%   (B) 70%   (C) 80%   (D) 90%

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)   State the law of mass action.

(ii)   How is dynamic equilibrium established?

(iii)   If $Q_c > k_c$ then predict the direction of reaction.

(iv)   What is equilibrium constant? How is it represented?

(v)   Write down two uses of sulphuric acid.

(vi)   What is meant by adduct?

(vii)   Write the formulae of bleaching powder and potash alum.

(viii) Name two acids used in the preservation of food.

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

(i)   How are alkyl radicals formed? Explain with example.

(ii)   Define molecular formula and give an example.

(iii)   Write down bromine water test.

(iv)   Write down two uses of Ethene.

(v)   Why alkenes are known as "Olefins"?

(vi)   Write down structural formula of glucose.

(vii)   Write down two uses of carbohydrates.

(viii) Define "Lipids".

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

(i)   Write two effects of global warming.

(ii)   Write the names of four regions of atmosphere.

(iii)   What is catalytic convertor?

(iv)   Why is the water molecule polar?

(v)   What is hepatitis?

(vi)   How is ammonia prepared by Haber's Process?

(vii)   Define Petroleum.

(viii) Define Minerals.

(PART - II)

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

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

   (b) Write any four chemical properties of acids.   4

Q6. (a) Write five physical properties of alkanes.   5

   (b) Explain the four sources and uses of proteins.   4

Q7. (a) Write a detailed note on fractional distillation of petroleum.   5

   (b) Explain the methods of removing permanent hardness of water.   4