

MODEL PAPER, 2023

| Subject: Chemistry | | | Grade-X | | M. Marks: 60 | | Time: 3 Hours | | |
|-----------------------------|---|---|-------------|---------|---------------------------------|-----|---------------|--|--|
| SECTION "A" | | | | | | | | | |
| (MULTIPLE CHOICE QUESTIONS) | | | | | | | | | |
| Q1. | Choose the correct answer for each from the given options. Each question | | | | | | | | |
| | carrie | ries one mark. | | | | | | | |
| | (i) | The unit of KC for reaction $N_2 + O_2 \rightleftharpoons 2NO$: | | | | | | | |
| | | (a) Mol/dm ³ | (k | o) Mol· | - ² /dm ⁶ | (c) | No unit | | |
| | (ii) | Salt among following is: | | | | | | | |
| | | (a) HCI | (t | o) KCI | | (c) | HNO3 | | |
| | (iii) Substances that react with both acids and bases are called: | | | | | | | | |
| | | (a) Conjugat | te bases (b | o) Amp | photeric | (C) | Buffers | | |
| | | | | | stance | | | | |
| | (iv) $CH_3 - CH_2$ is radical. | | | | | | | | |
| | (a) Methyl (b) Ethyl | | | | / | (c) | lso-propyl | | |
| | (v) | The general formula of alkene is: | | | | | A 11 | | |
| | () | (a) $C_n H_{2n+2}$ (b) $C_n H_{2n}$ | | | 2n | (C) | C_nH_{2n-2} | | |
| | (vi) Lactose is: | | | | | | | | |
| | (vii) | (a) Milk suga Glucose is: | ar (r |) поп | ey sugar | (C) | Cane sugar | | |
| | (*11) | (a) Vitamin | (h |) Carb | obydrates | (c) | Protein | | |
| | (a) Vitamin (b) Carbohydrates (c) Protein (viii) Amino acids are building block of: | | | | | | i iotoin | | |
| | (a) Vitamin | | | | eins | (c) | Lipid | | |
| | (ix) Ozone is gas found in the layer: | | | | | • | | | |
| | | (a) Tropospl | here (b | o) Mes | osphere | (C) | Stratosphere | | |
| | (x) | (x) Layer of atmosphere which separates stratosphere and troposphere is | | | | | | | |
| | known as: | | | | | | | | |
| | | (a) Tropo pa | use (b |) Mes | opause (| (c) | Thermopause | | |
| | (xi) How much fresh water is present on earth: | | | | | | | | |

| (a) 3% | (b) 0.2% | (c) 0.3% |
|--------|----------|----------|
|--------|----------|----------|

(xii) Which of the following is used as jet fuel:

(a) Kerosene oil (b) Petrol

(c) Diesel oil

SECTION "B"

(SHORT ANSWER QUESTIONS)

Note: Answer eight (08) questions from this section. Each question carries 3 marks.

(24)

- Q2. Distinguished between reversible and irreversible reaction OR fats and oil?
- Q3. Write equilibrium constant expression for the following equation.
 - $N_2 + 3H_2 \rightleftharpoons 2NH_3$ (i)
- Elaborate the Arrhenius concept of acid and base with suitable example OR Q4. what is Bronsted lowery acid base theory?
- Identify the functional group in the following compounds: Q5.
 - $CH_3 COOH$ (i) $CH_3 - CHO$ (ii) (iii) $CH_3 - CH_2 - CH_2 - OH$
- Define atmosphere? Explain briefly composition of atmosphere. OR describe Q6. composition of water.
- List down the layers of atmosphere OR Enlist the types of pollutants. Q7.
- Q8. What is salt? Define three types of salts with one example of each.
- Q9. Complete the following neutralization reaction between acid and bases.
 - $KOH + HNO_3 \longrightarrow + ----- + -----$ (i)
 - (ii)
 - $Ca(OH)_2 + H_2SO_4 \longrightarrow + ----- + ------$ (iii)
- Q10 The hydrogen ion concentration $[H^{\dagger}]$ 1 x 10-8 mol/dm3 what is pH of the solution?
- Q11. Give Reason:
 - Why petroleum is known as "Black Gold"?
 - Why water is amphoteric in nature?
- Q12. A reaction takes place between iron ion and chloride ion as: Fe⁺³ + 4Cl⁻ ≓ FeCl₄

At equilibrium, the concentrations are measured to be Fe⁺³ is 0.2 mol/dm³, Cl⁻ is 0.28 mol/dm³ and FeCl⁴ is 0.95x 10⁻⁴ ,mol/dm³. Calculate equilibrium constant Kc for given reactions.

Q13. Define the following terms:

(i) Titration (ii) Soft water (iii) Analytical ChemistryQ14. Write any three significance uses of carbohydrates OR proteisn or lipids.

SECTION "C"

(DESCRIPTIVE ANSWER QUESTIONS)

- Note: Answer any four (04) questions from this section. Each question carries 6 marks. (24)
- Q15. State law of Mass action. Derive and expression for equilibrium constant.
- Q16. Describe vitamins and types of vitamins OR differentiate between stratosphere and troposphere?
- Q17. What is Ozone? How does ozone depletion occurs by chlorofluorocarbons also maintain some adverse impact on it. OR describe global warming.
- Q18. Differentiate between soft and hard water, describe the different methods of removing temporary and permanent hardness.
- Q19. Describe the process of saponification with the help of flow sheet diagram.
- Q20. Give I.U.P.A.C name of the following compound.

(i)
$$CH_{2} - CH_{2} - CH_{-} - CH_{3}$$

(ii) $CH_{3} - CH_{-} - CH_{-} - CH_{3}$
(iii) $CH_{3} - CH_{-} - CH_{-} - CH_{2}$
(iv) $CH_{3} - CH_{-} - CH_{2} = CH_{-} - CH_{2}$
(iv) $CH_{3} - CH_{-} - CH_{-} = CH_{-} - CH_{2}$
(v) $CH_{3} - CH_{-} - CH_{-} = CH_{2}$
(vi) $CH_{2} - CH_{2} - CH_{-} - CH_{-} = CH_{2}$
(vi) $CH_{3} - CH_{-} - CH_{-} = CH_{2}$
(vi) $CH_{2} - CH_{2} - CH_{-} - CH_{-} = CH_{2}$
(vi) $CH_{2} - CH_{2} - CH_{-} - CH_{-} = CH_{2}$
(vi) $CH_{3} - CH_{-} - CH_{-} = CH_{2}$
(vi) $CH_{3} - CH_{-} - CH_{-} = CH_{2}$
(vi) $CH_{2} - CH_{2} - CH_{-} - CH_{-} = CH_{2}$

OR

Describe gas chromatography, also write two uses of Gas chromatography.