Second Term Exam : 2024-25

Std. : 11th | Subject : Chemistry | Marks : 80

General Instructions :

** The question paper is divided into four sections.*

1) *Section 'A' : Q. No. 1 contain's ten multiple choice type of questions carrying one mark each. Q. No. 2 contain's eight very short answer type of questions carrying one mark each.*
2) *Section 'B' : Q. No. 3 to Q. No. 14 contains twelve short answer type of questions carrying two marks each. Attempt any Eight.*
3) *Section 'C' : Q. No. 15 to Q. No. 26 contains twelve short answer type of questions carrying three marks each. Attempt any Eight.*
4) *Section 'D' : Q. No. 27 to Q. No. 31 contains five long answer type of questions carrying four marks each. Attempt any Three.*
5) *Figures to the right indicate full marks.*

Section 'A'

Q. 1 Select and write the correct answer. [10]

i) In dehydrohalogenation of alkyl halide, highly substituded alkene is obtained as a major product. This is called _____

(a) Markovnikorr's rule (b) Peroxide effect

(c) Kharasch effect (c) Saytzeff's rule

ii) Acetyl salicylic acid is also named as _____

(a) Paracetamol (b) Aspirin

(c) Salicylic acid (d) Chloroxylenol

iii) Which of the following radioisotope is used in spleen imaging?

(a) Chromium-51 (b) Phosphorous-32

(c) Iodine-131 (d) Radium-226

iv) The cyclic compounds in which the ring is made of only carbon atoms are known as _____

(a) Acyclic compounds (b) Homocyclic

(c) Heterocyclic (d) Heterocyclic aromatic

v) The valence shell electronic configuration of halogens is _____

(a) ns^2np^3 (b) ns^2np^4 (c) ns^2np^5 (d) ns^2np^6

vi) The rate of the reaction, $2KClO_3 \longrightarrow 2KCl + 3O_2$ is given by _____

(a) $R = K[KCl]\,[O_2]$ (b) $R = [KClO_3]^2$

(c) $R = K[KClO_3]$ (d) $R = K[KCl]^2[O_2]^3$

vii) The colloid in which the dispresed phase and dispresion medium both are liquids is known as _____

(a) Emulsion (b) Sol (c) Gel (d) Foam

viii) Molecular formula of phosphoric acid is _____

(a) H_3PO_4 (b) H_3PO_2 (c) HPO_3 (d) H_3PO_3

ix) The reagent used in the identification of NH_4^+ radical in the inorganic qualitative analysis of salt is _____

(a) Bacyer's reagent (b) Grignard reagent

(c) Nesseler's reagent (d) Tolen's reagent

x) The gas at a volume of 4 L is at a pressure of 2 atm. If the volume is changed to 16 L, what will be the new pressure?

(a) 2 atm (b) 12 atm (c) 10 atm (d) 0.5 atm

Q. 2 Answer the following. [08]

1) Write the name of the technique used to separate mixture of acetone and benzene.

2) What is the SI unit of electric current?

3) Write the significant figures in 0.0807

4) What is tincture of iodine?

5) Draw the structure of Pent-l-en-3-yne.

6) Write the formula for washing soda.

7) Give the relation between half life of radioelement and decay constant.

8 Draw the bond line formula for $CH_3-\overset{\overset{CH_3}{|}}{C}=CH-CH_3$

Section 'B'

Attempt any Eight. [16]

Q. 3 Explain the heterolytic fission with suitable example.

Q. 4 What are disinfectants? Give one example.

Q. 5 How will you distinguish between aromatic compound and aliphatic compound?

Q. 6 What is hydrogen bond? Give the intermolecular hydrogen bonding in water molecule.

Q. 7 Write the position of Lanthanoids and Actinoids in the periodic table.

Q. 8 State and explain Markovnikov's rule with suitable example.

Q. 9 Define oxidation number.

What is oxidation number of 'O' in Hydrogen Peroxide?

Q. 10 Write the type of hybridisation, Geometry and bond angle in water molecule.

Q. 11 Define :

(a) Saturated solution *(b)* Fractional distillation

Q. 12 What is polymerisation?

Write the reaction for the preparation of polythene.

Q. 13 Calculate the number of moles and molecules of Nitrogen in 0.228 litre of Nitrogen gas at STP.

Q. 14 0.004 kg of radioactive sample was reduced to 0.001 kg after 20 years.

Calculate the decay constant.

Section 'C'

Attempt any Eight. [24]

Q. 15 An alcohol is having molecular formula C_2H_6O.

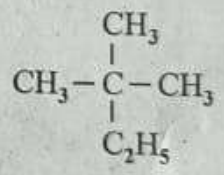
Answer the questions given below :

a) Draw the structural formula of this alcohol.

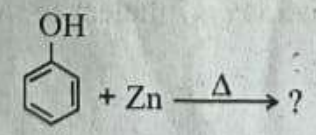
b) Write it's IUPAC name.

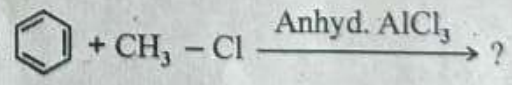
c) Draw it's functional group isomer.

Q. 16 Write the IUPAC name of the compound



Complete the following reactions :

a) 

b) 

Q. 17 What is coagulation? Explain any two methods of coagulation.

Q. 18 Explain Wurtz reaction with suitable example.

Q. 19 Write cathode and anode reactions taking place during the electrolysis of sodium chloride in the preparation of sodium hydroxide.

Q. 20 What happens when -

a) Ethyne reacts with bromine in CCl4.

b) 1, 2-Dibromoethane is heated with zinc metal.

c) Ethyl bromide is boiled with alcoholic KOH.

Q. 21 How many α and β particles are emitted in the following transmutation?

$$^{232}_{90}Th \longrightarrow {}^{208}_{82}Pb + ?$$

Q. 22 State law of mass action.

Write the equilibrium constant expression in the following equilibrium reaction:

a) $2HI(g) \rightleftharpoons H_{2(g)} + I_{2(g)}$ b) $N_{2(g)} + 3H_{2(g)} \rightleftharpoons 2NH_{3(g)}$

Q. 23 Explain any three factors affecting adsorption of gases on solids.

Q. 24 Draw the resonance hybrid structure at Nitric acid. Write any two points of differences between diamond and graphite.

Q. 25 Calculate the amount of calcium oxide formed by heating 19.3 g of calcium carbonate.

(Given : At wt. of Ca = 40, C = 12, O = 16)

Q. 26 Calculate the volume of 1 mole of a gas at exactly 30^0C at a pressure of 101.35 KPa.

Section 'D'

Attempt any Three. [12]

Q. 27 What are alkenes? Explain position isomerism in alkene with suitable example.

Q. 28 Define functional group.

Write the functional group of the following compounds :

(a) Aldehyde *(b)* Ether *(c)* Carboxylic acid

Q. 29 What is the difference between nuclear fusion and nuclear fission?

Give one example of each.

Q. 30 What is rate of chemical reaction?

State and explain Le-chateliers principle with respect to the following points-

(i) change in concentration *(ii)* change in temperature

Q. 31 What are antioxidants? Draw the structure of BHT.

Calculate the molecular mass of CH_3COOH in μ

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