

MAR THOMA RESIDENTIAL SCHOOL, TIRUVALLA
FIRST MODEL EXAM DEC 2019- 20

CHEMISTRY

Class: XII

Marks : 70

Time : 3 hrs

All questions are compulsory

Question 1 is of 20 marks with internal choice.

Question 2 to 8 is of two marks, one of them has internal choice.

Question 9 to 15 is of three marks, one of which has internal choice

Question 16 to 18 is of five marks with one having internal choice

$R = 8.314 \text{ J/K/Mol}, 0.0821 \text{ L atm/ K/Mol}, 0.083 \text{ L bar/ K/ mol}$

1 faraday = 96,500 coulomb, Avogadro number = 6.023×10^{23}

PPART – 1

Question -1

(a) FILL IN THE BLANKS:

[4]

- (i) F centre is responsible for ----- and ----- behaviour of the solid
- (ii) ----- battery is used in automobiles and ----- battery is used in hearing aids.
- (iii) When acetaldehyde is treated with iodine and sodium hydroxide ----- precipitate of ----- is formed.
- (iv) Using neutral ferric chloride solution ----- gives violet colouration while ----- gives buff coloured precipitate.

(b) Choose the correct alternative :

[4]

- (i) Which property of colloids is not dependent on the charge of colloidal particles
(a) Coagulation (b) electrophoresis (c) electro osmosis (d) tyndall effect
- (ii) Which of the compounds of xenon has pyramidal geometry
(a) XeF_2 (b) XeF_4 (c) XeO_4 (d) XeO_3
- (iii) The mechanism involved in $\text{CH}_3\text{Br} + \text{OH}^- \longrightarrow \text{CH}_3\text{OH} + \text{Br}^-$
(a) $\text{S}_\text{N}1$ (b) $\text{S}_\text{N}2$ (c) $\text{S}_\text{N}1$ and $\text{S}_\text{N}2$ (d) none of these
- (iv) Which of the following reacts faster with anhydrous ZnCl_2 and conc HCl
(a) Ethanol (b) methanol (c) 2 – propanol (d) 2 – methyl propan -2-ol

Match the following:

[4]

- | | |
|-------------------|-----------------|
| (a) Ascorbic acid | biodegradable |
| (b) Antacid | amorphous solid |
| (c) Glass | Ranitidine |
| (d) PHBV | Vitamin |

Answer the following questions :

[8]

- Give the common name and IUPAC name of the monomer of natural rubber
- Write balanced chemical equation of carbylamine reaction and cannizaro's reaction
- Give the IUPAC names of (a) $[\text{Ni}(\text{NH}_3)_6][\text{NiCl}_4]$ (b) $[\text{PtCl}_2(\text{en})_2](\text{NO}_3)_2$
- State (a) Henry's law (b) Raoult's law for volatile solute

Question – 2

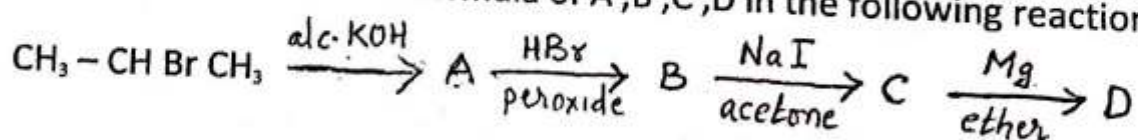
What are polyamides? Give one example and name its monomeric units

Question – 3

- Differentiate between antipyretics and analgesics
- Give an example each of antioxidant and preservative

Question -4

(A) Write the structural formula of A, B, C, D in the following reactions:



[OR]

(B) Explain Mond's process in refining of nickel

Question -5

Calculate the equivalent conductivity of 1M sulphuric acid if its conductivity is

$$26 \times 10^{-2} \text{ ohm}^{-1}\text{cm}^{-1}$$

Question – 6

- What causes Brownian motion in colloidal solution?
- What happens when gelatine is added to gold sol?

Question – 7

An element whose density is 6.8 g/cm^3 occurs in BCC structure with cell edge of 290 pm. Calculate the number of atoms present in 200 gm of the element.

Question – 8

- (a) Why should vitamin C be supplied regularly in our diet?
- (b) What happens when protein is denatured?

Question – 9

Give balanced equation for the following:

- (a) Ethane nitrile to ethanoic acid
- (b) Ethanoyl chloride to ethanol
- (c) Acetone to propane

Question – 10

(A) Give reasons for the following:

- (i) Transition metals act as catalyst
- (ii) The role of depressant in froth flotation process
- (iii) Transition metals form alloys

[OR]

(B) Complete and balance the chemical equation:

- (i) $\text{KMnO}_4 + \text{H}_2\text{SO}_4 + \text{H}_2\text{S} \longrightarrow$
- (ii) $\text{K}_2\text{Cr}_2\text{O}_7 + \text{H}_2\text{SO}_4 + \text{KI} \longrightarrow$
- (iii) $\text{KMnO}_4 + \text{H}_2\text{SO}_4 + \text{H}_2\text{O}_2 \longrightarrow$

Question – 11

Write balanced chemical equation to represent the extraction of the following metal:

- (a) Zinc from Zincite (b) Silver from Argentite (c) Copper from Copper pyrite

Question – 12

- (a) Draw the structure of glucose. Give a chemical test to distinguish between glucose and fructose
- (b) Name the deficiency disease related to vitamin A and vitamin C
- (c) Name the monomers present in the following polymers:
 - (i) Bakelite
 - (ii) nylon- 2 – nylon 6

Question -13

- (a) Define zero order reaction and give a suitable example
- (b) In a first order reaction the concentration of reactant is reduced to 12.5 % in one hour. When was it half completed.

Question – 14

- (a) Define peptisation
- (b) Explain why:
 - (i) Physical adsorption decreases with increase in temperature
 - (ii) Ferric chloride is preferred over potassium chloride to stop bleeding

Question -15

- (a) The conductivity of a solution containing 1 gram of barium chloride in 200 cm³ of water was found to be 0.0058 S cm⁻¹. What is the molar conductance?

[Ba = 137 , Cl = 35.5]

- (c) State Kohlrausch's law of independent migration

Question -16

- (a) Determine the osmotic pressure of a solution prepared by dissolving 25 mg of potassium sulphate in 2 litres of water at 25°C assuming it is completely dissociated. [K = 39 , S = 32 , O = 16]
- (b) The degree of dissociation of calcium nitrate in a dilute aqueous solution containing 7 gram of the salt per 100 gram of water at 100°C is 70%. If the vapour pressure of water at 100°C is 760 mm of Hg. Calculate the vapour pressure of the solution. [Ca = 40 , N = 14 , O = 16]

Question – 17

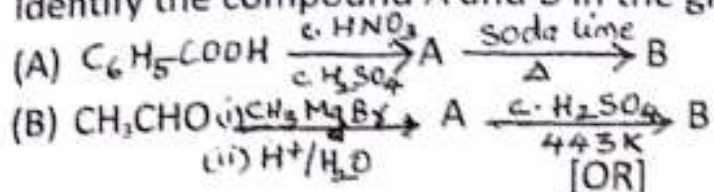
Give balanced chemical equation for the following:

- (a) Chlorine with hot concentrated NaOH
- (b) Ozone with moist potassium iodide
- (c) Phosphorus pentachloride is hydrolysed
- (d) Copper with dilute nitric acid
- (e) Ammonia with excess of chlorine

Question -18

- (A) (i) Write balanced chemical equations for the following:
 - (a) Aldol condensation
 - (b) HVZ reaction
 - (c) Scotten Baumanns reaction

(iii) Identify the compound A and B in the given reaction:



[OR]

(B)(i) Write balanced chemical reaction for the following and name the reaction

(a) Benzene diazonium chloride treated with cuprous chloride in presence of

Concentrated HCl

(b) Aniline treated with sodium nitrite and hydrochloric acid at 0°C

(ii) Give reasons for the following:

(a) Direct nitration of aniline is difficult

(b) Benzaldehyde doesnot undergo aldol condensation