BALDWIN GIRLS' HIGH SCHOOL, BENGALURU – 25

SEMESTER - 2 MODEL EXAMINATION,

FEBRUARY - 2022

CHEMISTRY [SCIENCE - PAPER II]

STD: 10 A - I **MAX MARKS:40**

TIME: ONE AND A HALF HOURS

Answer to this paper must be written on the paper provided separately.
You will not be allowed to write during the first 10 minutes.
This time is to be spent in reading the Question Paper.
The time given at the head of this paper is the time allowed for writing the answers.
Attempt all questions from Section A and any 3 questions from Section B.
The intended marks for questions or parts of questions are given in the brackets [].

SECTION A (10 MARKS)

Attempt ***all questions*** from this Section

Question 1

A) Choose the correct answers to the questions from the given options. (Do not copy the questions. Write the correct answer only) **[10]**

1. The alkaline property of liquor ammonia is due to the presence of ions:

[a] NH_4^{1+} [b] H_3O^+ [c] OH^- [d] H^+

2. An acid obtained from concentrated Nitric acid on reacting with Sulphur is:

[a] Sulphurous acid [b] Sulphuric acid [c]Hydrochloric acid [d]Nitrous acid

3. Which one is the odd amongst the following?

[a] C_2H_2 [b] C_4H_6 [c] C_2H_4 [d] C_3H_4

4. Magnalium is an alloy of elements:

[a]Al and Mg [b] Al and Fe [c] Al and Ag [d]Al and Cu

5.Some amount of Nitre and few copper turnings are mixed with conc. H_2SO_4 and strongly heated. A gas is evolved whose colour is:

[a]light green [b]greenish yellow [c]pink [d]reddish brown

6. C_nH_{2n-2} is the general formula for the homologous series of:

[a]alkenes [b]alkanes [c]alkynes [d]alkanols

7.The aim of the fountain experiment is to prove

[a]HCl is denser than air [b]HCl turns blue litmus red

[c]HCl fumes in air [d]HCl is highly soluble in water

8. A nitrate salt which on heating leaves behind pure metal is:

[a]potassium nitrate [b] lead nitrate

[c]calcium nitrate [d]silver nitrate

9. Arrange the following Hydrocarbons in their decreasing order of reactivity:

C_2H_4, C_2H_6, C_2H_2

[a]$C_2H_6 < C_2H_4 < C_2H_2$ [b] $C_2H_2 > C_2H_4 > C_2H_6$

[c] $C_2H_4 > C_2H_2 > C_2H_6$ [d] $C_2H_6 < C_2H_2 < C_2H_4$

10. All members of a homologous series can be represented by same:

[a]condensed formula [b]general formula

[c]structural formula [d]empirical formula

SECTION II [30 MARKS]

ANSWER ANY ***THREE*** QUESTIONS

Question 2.

(i)Name the following: **2**

(a)An anion detected through brown ring test.

(b)A hydrocarbon which contributes towards the greenhouse effect.

(ii)Define the following: **2**

(a) Catenation

(b) Isomerism

(iii)Write balanced chemical equations for the following: **2**

(a)Reaction of ammonia gas in excess of chlorine gas.

(b)Reaction of two gases, one of which is acidic and the other is basic in nature to form a solid substance.

(iv)Draw the electron dot structure diagram for the following: **2**

(a)Ethane

(b)Methane

(v)Name the catalyst used for the following conversions of: **2**

(a)Ethene to Ethane.

(b)N_2 and H_2 to Ammonia in the Haber's process

Question 3.

(i)Answer the following questions with respect to the electrolytic process in the extraction of Aluminium **3**

(a)An Aluminium compound added to the electrolytic bath to lower the fusion point.

(b)Write the chemical equation for the reaction at the cathode.

(c)Explain the reason why powdered coke is sprinkled over the electrolytic mixture?

(ii) write the structural formula for the following: **3**

(a) 3 - Pentanol

(b) Propanal

(c)But - 2 -yne

(iii)Give reasons for the following: **2**

(a)Methane does not undergo addition reaction but Ethene does.

(b)Ethyne is more reactive than Ethene.

(iv)Name the gas evolved when: **2**

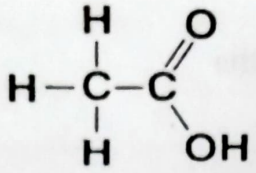
(a)Cold dilute nitric acid reacts with copper metal

(b)Hot conc. Nitric acid reacts with carbon

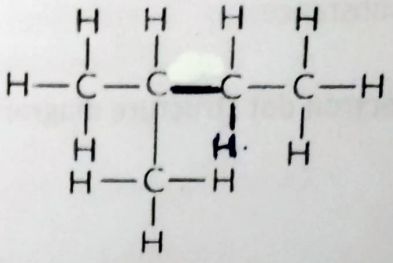
Question 4.

(i)Write the IUPAC names of each of the following; **3**

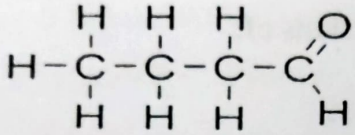
(a)



(b)



(c)



(ii)The inference drawn from the following observations: **2**

(a)A salt Y which reacts with $BaCl_2$ solution to give a white precipitate insoluble in dilute HCl. State the anion in Y

(b)A gas Z which changes the colour of $KMnO_4$ solution and of lead acetate solution, but has no effect on lime water when passed through it.

(iii)Give a chemical test to distinguish between the following pairs: **2**

(a)MnO_2 and CuO by using conc. HCl

(b)Dilute HCl and Dilute H_2SO_4 by using Lead Nitrate solution

(iv)Some properties of Sulphuric acid are listed below. Choose the role played by Sulphuric acid as A, B, C or D which are responsible for the reactions (i) to (iii) **3**

(A)Dilute Acid (B) oxidising agent (C) Non – volatile acid

(D)Dehydrating agent

(i) $CuSO_4.5H_2O \xrightarrow{\text{Conc } H_2SO_4} CuSO_4 + 5H_2O$

(ii) $S + 2H_2SO_4[\text{conc}] \longrightarrow 3SO_2 + 2H_2O$

(iii) $NaNO_2 + H_2SO_4 \xrightarrow{<200^\circ C} NaHSO_4 + HNO_3[\text{conc}]$

Question 5.

(i)The following questions are pertaining to the laboratory preparation of Hydrogen chloride gas. **3**

(a)Write the chemical equation for the preparation with the condition.

(b)Name the drying agent used for drying of HCl gas.

(c)State with reasons the method of collection of HCl gas.

(ii)Balance and complete the following equations: **2**

(a) $C_2H_6 + O_2 \longrightarrow$

(b) $SO_3 + H_2SO_4 \longrightarrow$

(iii)Write structural formula for the following isomers of: **2**

(a)Iso-Butane

(b)Neo-Pentane

(iv)In industries Sulphuric acid is manufactured in large scale by a process. **2**

(a)Name the process.

(b)Write the balanced chemical equation with the condition for the conversion of sulphur dioxide to sulphur trioxide.

(v) Write the balanced chemical equation for catalytic oxidation of Ammonia gas. **1**

Question 6.

(i)State your observation for the following when: **2**

(a)Dilute Hydrochloric acid is added to sodium carbonate.

(b)Ammonia gas is passed through Nessler's reagent.

(ii)Write balanced equation for the following conversions: **3**

(a)Ethyne to ethane

(b)Ethane to monochloroethane

(c) Ethyne to 1,1,2,2 tetrachloroethane

(iii)Write the IUPAC name for the following: **2**

(a)Acetylene

(b)Formic acid

(iv) Give the balanced chemical equations for the following: **3**

(a)To illustrate the reducing action of ammonia on Lead II oxide.

(b)Conversion of impure Bauxite to sodium Aluminate in the Baeyer's process of concentration of the ore.

(c)Reaction between Iron II sulphide and dilute HCl.

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