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FIRST YEAR (NEP Version II)
COURSE CODE: 24CHE12101
COURSE NAME: General Chemistry
(Semester II)

Program: B.Sc. General
Program Specific: F.Y.B.Sc.
Course Type: MAJOR
Paper: I

Credits: 2
Time: 2 Hours
Max. Marks: 30
SET: A

Instructions to the candidate:

- 1) All questions are compulsory.
- 2) Figures to the right indicate full marks.
- 3) Draw a well labelled diagram wherever necessary.

Q1) Attempt ANY SIX of the following:

[6 x 2 = 12]

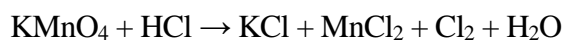
1. Write the number of significant figures in (i) 0.0056030 (ii) 3.3012×10^{12} .
2. Calculate number of moles and millimoles in 12 g of oxalic acid, whose molar mass is $126.07 \text{ g mol}^{-1}$.
3. Give the formula to calculate molarity and normality.
4. Define oxidation and reducing agent.
5. Calculate oxidation number of Cl in KClO_3 compound.
6. State the rules used for balancing excess O and excess H, in acidic medium, according to ion electron method.
7. Give any two functions of vacuoles.
8. Name the types of carbohydrates.

Q2) Attempt ANY THREE of the following:

[3 x 4 = 12]

- i. An organic compound on analysis gave 58.55% Carbon, 4.05% Hydrogen, 11.36% Nitrogen and 26.04 % Oxygen. Calculate its empirical formula and molecular formula if its molar mass is 123 g mol^{-1} . [Given: Molar mass of: H = 1 g mol^{-1} , O = 16 g mol^{-1} , N = 14 g mol^{-1} , C = 12 g mol^{-1}]
- ii. Calculate the mass of AgNO_3 needed to convert 2.33 g of Na_2CO_3 to Ag_2CO_3 . Also calculate the mass of Ag_2CO_3 formed.
[Given: Molar mass of : $\text{Ag}_2\text{CO}_3 = 275.7 \text{ g mol}^{-1}$, $\text{Na}_2\text{CO}_3 = 106.0 \text{ g mol}^{-1}$, $\text{AgNO}_3 = 169.9 \text{ g mol}^{-1}$]

iii. Balance the following reaction by oxidation number method.



iv. Explain the different types of plastids.

v. Give four differences between nucleosides and nucleotides.

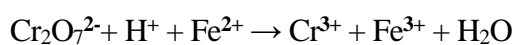
Q3) Attempt ANY TWO of the following:

[2 x 3 = 06]

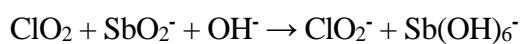
a) Calculate molar concentration of 37 % (w/w) of concentrated hydrochloric acid with density of

1.18 g/mL. [Given: Molar mass of HCl = 36.5 g mol⁻¹]

b) Balance the following reaction by the ion -electron method.



c) Balance the following reaction by ion -electron method.



d) Give the one function each of lysosomes, cell wall and mitochondria.
