Reg. No…….. Name…….. **24UH1066**

BA / BSc / BCOM DEGREE END SEMESTER EXAMINATION - NOVEMBER 2024

UGP (HONS.) SEMESTER - 1: DISCIPLINE SPECIFIC COURSE (CHEMISTRY)

COURSE: 24UCHEDSC101: FUNDAMENTALS OF CHEMISTRY - I

(For Regular 2024 Admission)

Time: 1.30 Hours Max. Marks: 50

PART A

One Word Questions

*(Answer **all** questions. Each question carries **1** Marks)*

1. Define Boltzmann constant.
2. The net dipole moment of $Cl_2C=CCl_2$ will be……
3. Describe isotones with example.
4. Give example of a redox indicator.
5. Identify the more acidic compound of the following:
   CH_2BrCH_2COOH, $CH_3CHBrCOOH$
6. Illustrate the structure of a carbene.
7. Give an example each for a nucleophile and a electrophile.
8. The delocalization of σ-electrons or lone pair of electrons into adjacent π-orbital or p-orbital is called…… **(1 x 8 = 8)**

PART B

Short Answer Questions

*(Answer any **five** questions. Each question carries **3** Marks)*

9. A 15.50 mL sample of gas is at 3.500 atm. What will be the volume if the pressure becomes 1.500 atm, with a fixed amount of gas and temperature?
10. Describe how the vapour pressure is related to boiling point for a liquid.
11. The molarity of a sulphuric acid solution is 2 M. Calculate the volume of sulphuric acid solution required to prepare 250 ml of 0.75 M solution.
12. Draw the titration curve obtained when 0.1 M NaOH is titrated with 0.1 M HCl.
13. Describe EDTA titrations.
14. Explain hybridization taking ethane as an example.
15. Predict the more stable alkene of the following and explain:
    i. $CH_3CH_2CH_2CH=CH_2$ ii) $CH_3CH=CHCH_2CH_3$
16. Describe a rearrangement reaction with an example.

(3 x 5 = 15)

PART C

Short Essay Questions

*(Answer any **two** questions. Each question carries **6** Marks)*

17. Distinguish between crystalline and amorphous solids.
18. Find the oxidation number of chromium in $CrCl_3$, $Cr(H_2O)_6$ and $Na_2Cr_2O_7$.
19. Differentiate between primary and secondary standards. Give examples for each.
20. Describe the characteristics of titrations using potassium permanganate.

(6 x 2 = 12)

PART D

Long Essay Questions

*(Answer any **one** question. Each question carries **15** Marks)*

21. Discuss the different types of intermolecular forces with examples.
22. Explain the following i) Substitution reactions ii) Elimination reactions.

(15 x 1 = 15)