Reg. No……. Name……..……

B A, B. Sc, B.Com DEGREE END SEMESTER EXAMINATION - APRIL 2025

UGP (HONS.) SEMESTER - 2: DISCIPLINE SPECIFIC COURSE

COURSE: 24UCHEDSC102- FUNDAMENTALS OF CHEMISTRY - II

(For Regular 2024 Admission)

Time: 1.5 Hours Max. Marks: 50

PART A

One Word Questions. Answer all questions. Each question carries 1 Marks (8 × 1= 8 marks)

1. How many significant figures are present in 0.0502? [A, CO1]
2. Which experiment verify the wave nature of electrons? [R, CO2]
3. What is the Ritz-combination principle? [R, CO2]
4. What is the importance of the solubility product (Ksp) in precipitation? [U, CO3]
5. Lindlar's catalyst is ---------- [R, CO4]
6. The product of ozonolysis of Ethene is ---------- [U, CO4]
7. Complete dehydrohalogenation of $CH_3CHBrCH_2Br$ yields……. [A, CO4]
8. What is Baeyer's reagent? [R, CO4]

PART B

Short Answer Questions. Answer any five questions.

Each question carries 3 Marks (5 x 3 = 15 marks)

9. Differentiate the function: $f(x) = 5x^3 - 4x + 7$ [A, CO1]
10. Differentiate between Limit of detection (LOD) and Limit of quantification of (LOQ) in an analysis. [U, CO1]
11. Explain the Compton Effect. [U, CO2]
12. Calculate the velocity of a beam of electrons whose de Broglie wavelength is 10 nm. ($m_e = 9.1 \times 10^{-31}$ Kg) [U, CO2]
13. Explain the principle of solvent extraction with an example. [U, CO3]
14. What is Wurtz reaction? Illustrate with an example. [A, CO4]
15. Explain oxymercuration-demercuration reaction of alkenes with mechanism. [A, CO4]
16. How would you distinguish between a terminal alkyne and a non-terminal alkyne using a chemical test? [A, CO4]

PART C

Short Essay Questions. Answer any two questions.

Each question carries 6 Marks (2 x 6= 12 marks)

17. What is dispersion? Explain any two quantities that measures dispersion. [U, CO1]
18. Explain the phenomenon of photoelectric effect and calculate the minimum energy that the photon must possess to eject an electron from a particular metal for which the threshold frequency is 1×10^{15} Hz. [A, CO2]
19. Discuss the Davisson-Germer experiment on electron diffraction. [U, CO2]
20. How barium is estimated using gravimetric analysis? Describe the procedure. [U, CO3]

PART D

Long Essay Questions. Answer any one question.

Each question carries 15 Marks **(1 x 15= 15 marks)**

21. Give an account of different types of errors in chemical analysis. Also explain the methods of eliminating or minimizing errors [U, CO1]

22. Explain with mechanism

    (a) Chlorination of methane.

    (b) Syn- and anti - Hydroxylation reactions of alkene. [A, CO4]

Cognitive Level: R – Remember; U – Understand; A – Apply; An – Analyze; E – Evaluate; Cr – Create