Reg No:..... K24FY1314
Name :.....

First Semester FYUGP Chemistry Examination
NOVEMBER 2024 (2024 Admission onwards)
KU1DSCCHE101 (FUNDAMENTALS OF CHEMISTRY - 1)
(DATE OF EXAM: 2-12-2024)

Time : 90 min Maximum Marks : 50

Part A (Answer any 6 questions. Each carries 2 marks)

1. Write the equation to calculate the velocity of an electron and indicate the terms. 2

2. What is black body radiation? 2

3. State the modern periodic law and define periodicity 2

4. Name the indicator that can be used for the titration of nitric acid with sodium carbonate and also name an acid which can be used as a primary standard? 2

5. What do you mean by aliphatic and aromatic series of compounds. 2

6. How does electronegativity affect the polarity of a bond? 2

7. What is heterolysis? What are the products obtained when a bond undergoes heterolysis? 2

8. Explain the structure of a nitrene. 2

Part B (Answer any 4 questions. Each carries 6 marks)

9. Explain the Bohr model of atom and its limitations 6

10. B2. Explain the terms, screening, effect and effective nuclear charge. 6

11. Distinguish between acidimetry and alkalimetry? Give examples and equations for each? 6

12. a)Give the IUPAC names of the following compounds:

    (i) $CH_3 - CH = C(CH_3) - C = CH$
    (ii) $CH_3 - CH(OH) - CH(CH_3)_2$
    (iii) $CH_3CH(CH_3) - CO - C_2H_5$

    b)Draw the structures of the following

(i) 2-hydroxy butanoicacid

(ii) 4-cloropent-2-ene-1-ol 6

قل ربّ زدنی علما
SIR SYED COLLEGE
CENTRAL LIBRARY

13. Differentiate between carbocations and carbanions. Explain the generation of both. 6

14. Explain the different types of reactions encountered in organic chemistry with example 6

Part C (Answer any 1 question(s). Each carries 14 marks)

15. (a) Discuss IUPAC naming of aldehydes and ketones and write the structural formulae of 4- amino-2-ethyl -2-pentanal and Pent-2,4-dione 7

    (b) write a detailed note on classification of organic compounds. What are homologous series explain with examples 7

16. (a) (a) What volume of 10 molar HCl and 3 molar HCl should be mixed to get one litre of 6 molar HCl solution?

    (b) How many moles and how many grams of sodium chloride (NaCl) are present in 250 cm^3 of a 0.50 M NaCl solution?

    7

    (b) a) Explain different terms for expressing concentrations of a solution with equations.

    b) A sample of H_2SO_4 (density = 1.787 g/ml) is labelled as 86% (w/w). What is the molarity of the acid? What volume of acid has to be used to make 1 L of 0.2 M H_2SO_4 solution?

    7

SIR SYED COLLEGE
CENTRAL LIBRARY