K25FY4216 Pages: 2 Reg No:.....
Name:.....

First Semester FYUGP Degree (Reg/Sup) Examination
NOVEMBER 2025
KU1DSCCHE101 - FUNDAMENTALS OF CHEMISTRY - 1
2024 Admission onwards

Time : 1.5 hours Maximum Marks : 50

Section A

Answer any 6 questions. Each carry 2 marks.

1. Explain briefly the structure of alkyl anion based on hybridization
2. What is heterolysis? What are the products obtained when a bond undergoes heterolysis?
3. What are acid base indicators. Give examples?
4. What is molality and write the expression to find molality?
5. What do you mean by aliphatic and aromatic series of compounds.
6. Give the IUPAC names of methyl cyanide and formic acid.
7. Write the equation to calculate the energy of an electron and indicate the terms.
8. What is ionisation potential and write the unit in which it is expressed?

Section B

Answer any 4 questions. Each carry 6 marks.

9. Explain the characteristics of homologous series taking alkanes and alcohols as examples
10. a)Give the IUPAC names of the following compounds:

    (i) $CH_3 - CH = C(CH_3) - CH = CH_2$
    (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

11. Explain how IUPAC names are assigned to cycloalkanes and carboxylic acid.

12. Calculate the wavelength of the spectral line obtained in the Lyman series if the electron in the hydrogen atom has been excited to the third energy level.

13. Explain how the shielding effect of inner electrons influences the ionisation energy and electron gain enthalpy.

14. Calculate the effective nuclear charge felt by a 2p electron of a nitrogen atom? What is the effective nuclear charge felt by its 1s electron?

Section C

Answer any 1 questions. Each carry 14 marks.

15. Briefly review different types of organic reactions. Discuss the mechanisms of these reactions and illustrate with examples.What are electrophiles and nucleophiles.Give examples.

16. a)Explain the simple first aid procedures to be administered to victims if they suffer burns from heat, acids, alkalies, phenol and bromine b)(b)Analyze the importance of PPE in ensuring safety while handling hazardous chemicals.