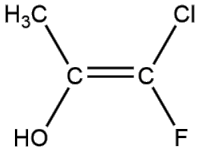


**B.Sc. DEGREE END SEMESTER EXAMINATION : NOVEMBER 2023****SEMESTER 3 : CHEMISTRY****COURSE : 19U3CRCHE3 : ORGANIC CHEMISTRY - I***(For Regular - 2022 Admission and Improvement/Supplementary - 2021/2020/2019 Admissions)*

Time : Three Hours

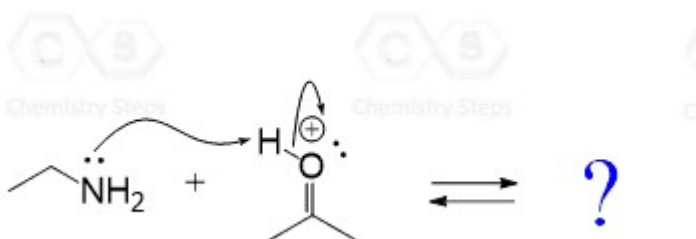
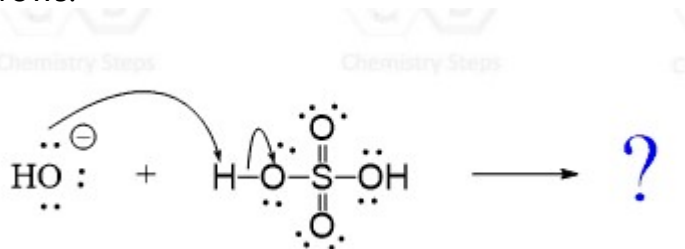
Max. Marks: 60

**PART A****Answer All (1 mark each)**

- Why is  $\text{CH}_2=\text{CH}^+\text{CH}_2$  is more stable than  $\text{CH}_3\text{CH}_2^+\text{CH}_2$  ?
- Designate E,Z terminology to the following compound.  

- What do you understand by axial and equatorial hydrogen in cyclohexane ?
- The electrophile generated in the Chlorination of benzene is .....
- Draw the line representation of a) 2,2-dimethylbutane and b) 3-methylpentane.
- The number of  $\pi$  electrons in Benzene and Naphthalene are .....
- A meso compound is optically inactive due to .....
- The intermediate formed during the reaction between chlorobenzene and sodium amide in liq.  $\text{NH}_3$  is .....

**(1 x 8 = 8)****PART B****Answer any 6 (2 marks each)**

- How acetophenone can be synthesized?
- Draw the Newmann projection formulae for ethane.
- Draw the expected products in the following reactions according to the curved arrows:



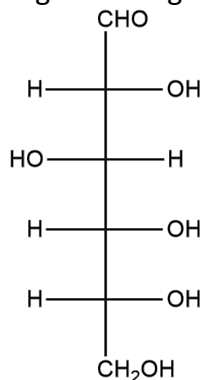
- Explain the synthesis of ethylbenzene.
- Give the structure and IUPAC name of a) Picric acid and b) TNT

14. Give E-configuration of  $\text{CH}_3\text{CH}=\text{C}(\text{OH})\text{Cl}$ .
15. Write the Structural formulae of the following compounds  
a) 2,6-dichloro-4-nitrobenzoic acid and b) Benzoic anhydride
16. Write the Structural formulae of the following compounds  
a) 2,5,6,6-tetramethyloctane and b) 4-tert-butyl-3-ethyl-2,8-dimethyl-6-neopentyldecane  
**(2 x 6 = 12)**

**PART C**

**Answer any 4 (5 marks each)**

17. Find the absolute configuration (R/S) of all chiral carbons in D-glucose. The structure of D-glucose is given below.



18. Phenol is acidic whereas alcohol is neutral, Justify
19. Write short notes on :  
(a) Conformational analysis (b) Equatorial and Axial bonds in cyclohexane
20. The carbon-carbon bond distance in benzene is intermediate between the bond distance in ethene and ethane. Account for this observation
21. Discuss in detail mechanism of Friedel Craft's alkylation of benzene.
22. Explain the Elimination - Addition mechanism in aromatic nucleophilic substitution.  
**(5 x 4 = 20)**

**PART D**

**Answer any 2 (10 marks each)**

23. Write briefly on different elements of symmetry.
24. What are carbonium ions? How do you account for the relative stability of primary, secondary and tertiary carbonium ions ?
25. Discuss the orientation effects of Amino, methoxy and methyl groups in aromatic substitution reactions.
26. What do you know about E-1 and E-2 elimination? Explain in detail with examples.  
**(10 x 2 = 20)**