Reg. No ..... Name **25U326-S**

B.Sc. DEGREE END SEMESTER EXAMINATION - OCTOBER 2025

SEMESTER 3 : CHEMISTRY

COURSE : **19U3CRCHE3 :ORGANIC CHEMISTRY - I**

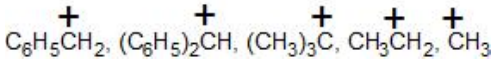
(For Improvement/Supplementary 2023/ 2022/2021/2020/2019 Admissions)

Time : Three Hours Max. Marks: 60

PART A

Answer All (1 mark each)

1. Give the order of preference for the selection of principal functional group for the following Carboxylic acids, sulphonic acid, aldehydes, amides
2. The major product obtained during the sulphonation of naphthalene at a temperature below 80°C is
3. What are enantiomers?
4. What do you understand by the terms +E and - E effect ?
5. What is the necessary condition for a molecule to show geometric isomerism?
6. Write the Structural formulae of the following compounds
   a) Phenylethanone and b) Diphenylmethanone
7. Give the structure and IUPAC name of neopentylchloride
8. Arrange the following in the order of increasing stability

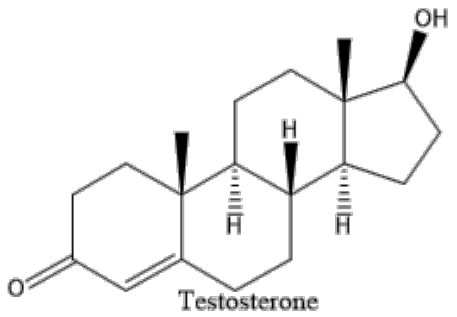


(1 x 8 = 8)

PART B

Answer any 6 (2 marks each)

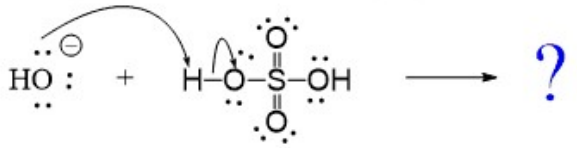
9. Draw the syn and anti forms of benzaldoxime.
10. The structure of testosterone (male sex hormone) is given below. Find out the number of chiral centres present in it.

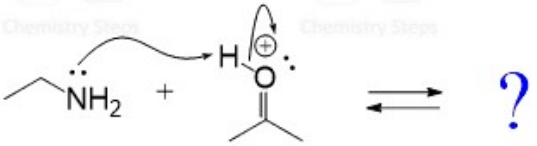


Testosterone

11. Write the Structural formulae of the following compounds
    a) 2,6-dichloro-4-nitrobenzoicacid and b) Benzoic anhydride
12. With suitable example explain the terms plane of symmetry and centre of symmetry.
13. Write the Structural formulae of the following compounds
    a) 2-ethyl-4,5-dimethylheptanal and b) 4-hydroxy-3,5-dimethoxybenzaldehyde
14. Anhydrous $AlCl_3$ is used as a catalyst in Friedel-Crafts reactions not aqueous $AlCl_3$. Explain.

15. Draw the expected products in the following reactions according to the curved arrows:





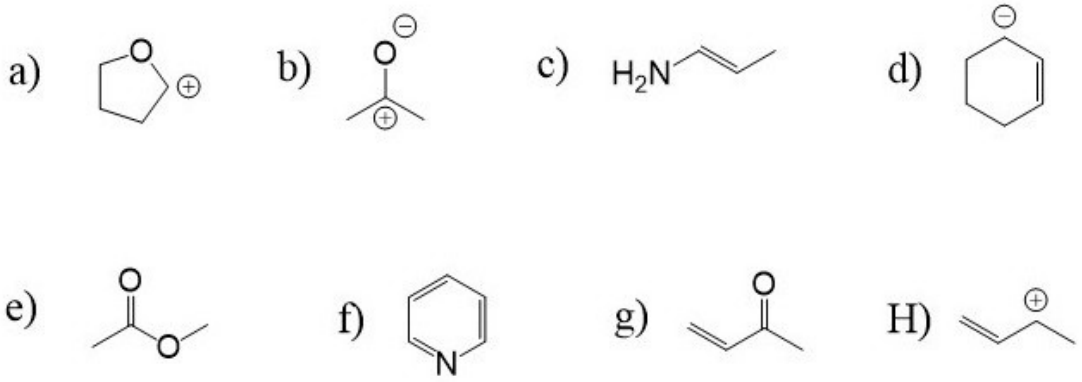
16. Explain addition reaction with examples.

(2 x 6 = 12)

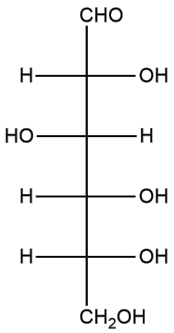
PART C

Answer any 4 (5 marks each)

17. Using curved arrows draw at least one resonance structure for each of the following species.



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



19. Comment on the optical activity of allenes.
20. Explain Addition Elimination reaction mechanism in Aromatic nucleophilic substitution reactions.
21. Discuss in detail mechanism of nitration of benzene.
22. Explain Benzyne mechanism in Aromatic nucleophilic substitution reactions.

(5 x 4 = 20)

PART D

Answer any 2 (10 marks each)

23. What are carbanions and carbonium ions? How are they generated? Mention few reactions involving carbanions and carbonium ions. Illustrate your answer with suitable examples
24. Write briefly on different elements of symmetry.

25. Explain why a) Anisole is activating and ortho – para directing and b) Benzaldehyde is deactivating and meta directing towards electrophilic aromatic substitution.

26. How do you account for the relative stability of primary, secondary and tertiary alkyl carbocations?

(10 x 2 = 20)