3/3/23

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D6BCH2002

Reg.No.....

Name: .....

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2023

(Regular/Improvement/Supplementary)

CHEMISTRY

GCHE6B10T: ORGANIC CHEMISTRY – III

Time: 2 Hours **Maximum Marks: 60**

SECTION A: Answer the following questions. Each carries 2 marks.

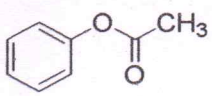
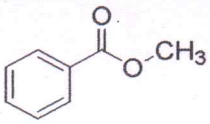
(Ceiling 20 Marks)

1. Define the term hypsochromic shift. What structural feature may produce such a shift in an organic compound?
2. The O-H stretching frequency of a concentrated solution of ethanol occurs at ~ 3400 cm^{-1}. Whereas that of a dilute solution occurs at ~ 3600 cm^{-1} in their IR spectra. Explain.
3. How does shielding of protons affect the positions of their signals in the NMR spectra?
4. α-Methyl glucoside and β-Methyl glucoside both do not reduce Fehling solution or Tollen's solution. Explain.
5. Give a chemical test to distinguish starch from other polysaccharides.
6. Draw the structure of two purine bases found in nucleotides.
7. What is meant by the primary structure of a protein?
8. What are lipids? What are their functions?
9. Give the natural source and structure of Menthol.
10. Write a note on exhaustive methylation of alkaloids.
11. What are cycloaddition reactions? Give an example for a [4+2] cycloaddiiton reaction.
12. Discuss, with equation, the rearrangement occurring when allyl phenyl ether is heated.

SECTION B: Answer the following questions. Each carries 5 marks.

(Ceiling 30 Marks)

13. How can IR spectroscopy be used to distinguish between
    a. Cyclohexane and Cyclohexanone
    b. 1-Butanol and Diethyl ether
14. Using NMR spectroscopy how can you distinguish between:-

(i)  and 

(ii) 1- Propanol and 2-Propanol

15. What are the important differences (structural and functional) between DNA and RNA?
16. What are saponification value and Iodine value of oils? What is their significance?
17. Discuss the structural elucidation of citral.
18. Using FMO method show the mode of thermal electrocyclic reaction of 1,3-butadiene.
19. Distinguish between suprafacial and antarafacial rearrangements with respect to sigmatropic shifts.

SECTION C: Answer any 1 question. Each carries 10 marks.

20. Discuss the open chain structure of D (+) glucose with characteristic reactions. What are its limitations of this open chain structure? How does cyclic structure explain these limitations?
21. Explain Merrifield solid phase peptide synthesis. What are the advantages of this method?

(1 x 10 = 10 Marks)