

D.K.M. COLLEGE FOR WOMEN (AUTONOMOUS), VELLORE – 1
SEMESTER EXAMINATIONS
APRIL – 2016
SPECTROSCOPY

12CCH6D

Time: 3 Hrs

Max. Marks: 75

SECTION – A (10 X 2 =20)

Answer ALL the questions.

1. What is emission spectrum?
2. What are chromophores?
3. What is the essential condition for a molecule to have IR spectrum?
4. Define Stokes lines.
5. Write the principle behind NMR spectroscopy.
6. Mention the number of NMR signals in a) Methane b) Methyl alcohol.
7. What are metastable ions?
8. State nitrogen rule.
9. Define average.
10. What are the four basic types of computers?

SECTION – B (5 X 5 =25)

Answer any FIVE of the following questions.

11. Explain the factors governing absorption maximum and intensity.
12. Describe the block diagram of single cell photocolormeter.
13. Explain the following components of an IR spectrometer a) Source of radiation b) Monochromators.
14. Discuss about sampling techniques in IR spectroscopy.
15. Explain the basic instrumentation of NMR spectroscopy.
16. Describe spin - spin coupling with suitable example.
17. Define a) Base peak. b) Molecular peak.
18. Write the characteristics of computers.

SECTION – C (3 X 10 =30)

Answer ALL the questions.

19. a) Explain different types of electronic transitions with suitable examples. (10)
(Or)
b) i) Define Rayleigh and Raman Scattering.
ii) State mutual exclusion principle. Mention any two applications. (4 + 6)
20. a) Explain different fragmentation patterns with examples. (10)
(Or)
b) Discuss the NMR spectrum of any five simple organic compounds. (10)
21. a) Describe the block diagram of a digital computer. (10)
(Or)
b) i) Explain the instrumentation of ESR spectroscopy.
ii) Define median and standard deviation. (6 + 4)