

Con. 5215-09.

(REVISED COURSE)

SP-7823

(3 Hours)

[Total Marks : 100

- N.B. :** (1) Question No. 1 is **compulsory**.
 (2) Attempt any **four** questions out of remaining **six** questions.
 (3) **Illustrate** answers with **sketches** wherever **required**.
 (4) Assume **suitable** data.

1. Answer the following :- 20
- (a) Glass is better than fused silica as a prism construction material for monochromator to be used in visible region. Justify.
 - (b) Explain how spectrometer and spectrophotometer differ from each other.
 - (c) Define chemical shift and explain its significance in NMR spectrometry.
 - (d) Why the rate of propagation of EMR is less in medium containing matter? Explain.
 - (e) State the advantages of solid state detectors over the gas filled detectors.
2. (a) What are the types of filters? Explain with suitable diagrams. 10
 (b) Give the list of sample handling systems in mass spectrometry. Explain any two with neat schematic diagram. 10
3. (a) Explain the principle of ESR compare it with NMR. Draw and explain ESR spectrometer. 10
 (b) What is meant by Raman Effect? What are the properties of Raman Lines? 10
4. (a) What are the types of detectors used in Gas chromatography? Explain any one detector in detail. 10
 (b) With a neat schematic diagram, explain working of GM counter. 10
5. (a) Draw a neat schematic diagram of X-ray tube and explain its working. 10
 (b) With a neat block-diagram, explain an atomic absorption spectrophotometer. 10
6. (a) What is radiation source? Explain the types of sources of radiation used in IR spectrophotometry. 10
 (b) Explain the principle of fluorescence and phosphorescence with suitable energy diagram. List the factors affecting fluorescence and phosphorescence. 10
7. Write short on :- 20
- (a) O₂ analyzer
 - (b) GC-MS.
