



Q.P. Code :18632

[Time: Three Hours]

[Marks:80]

Please check whether you have got the right question paper.

- N.B:
1. Question.No.1 is compulsory.
 2. Attempt any three questions from the remaining questions.
 3. Draw neat block diagrams wherever necessary.
 4. Assume suitable data, if needed.
 5. Figures on the right indicate maximum marks.

- Q.1** Attempt **any four** from the following. All questions carry equal marks. 20
- i. Give the statement of Beer Lamberts law and derive the mathematical equation for the same.
 - ii. Explain the basic principle of mass spectroscopy.
 - iii. Why do we need magnetic field in NMR spectroscopy?
 - iv. Draw and explain the working of a pulse height analyser.
 - v. What is electromagnetic radiation (emr)? Explain. Also write the mathematical equations for energy and wavelength of emr.
- Q.2** A. Draw and explain working of Raman spectroscopy. 10
 B. Explain the working of prism and grating type of monochromators. 10
- Q.3** A. Draw and explain the working of Atomic absorption spectroscopy. 10
 B. Explain the working of a photomultiplier tube. 10
- Q.4** A. Explain the working of quadrupole type of mass spectrometer. 10
 B. Explain working of any one type of detector used in mass spectroscopy. 10
- Q.5** A. Give the classification of chromatography. Explain the working of a gas chromatograph. 10
 B. Explain the working of Geiger Muller counter. 10
- Q.6** Write short notes on **any two** from the following. 20
- A) Gas density analyser.
 - B) X ray absorption meter.
 - C) Flame ionization detector.
 - D) Paramagnetic oxygen analyser.
-