

(2½ hours)

Total marks: 60

- N.B.:** (1) All questions are **compulsory**.
 (2) **Figures** to the **right** indicate full marks.
 (3) Draw **neat** and **labeled diagrams** wherever necessary.

Q.1. Explain with a suitable example use of LC-MS/MS technique in quantitation of analytes. [12]

OR

Q.1. Explain with a suitable example use of mass spectrometric technique in identification and quantitation of peptides. [12]

Q.2. Describe the cytochrome P450 system and its application in drug metabolite research. [12]

OR

Q.2. Describe the significance and application of LC-MS/MS in quantitation of drug metabolites. [12]

Q.3. With a suitable example describe the use of LC-MS in evaluating purity of drug molecules. Add a note on the use of LC-MS/MS in elucidation of molecular structure. [12]

OR

Q.3. Bring out the importance of sample processing while quantifying pesticide residues from food products. Add a note on the application of hyphenated techniques in pesticide residue analysis. [12]

Q.4. Using suitable examples describe alpha, beta and gamma emitters. Add a note on radioactive decay. [12]

OR

Q.4. Explain how a scintillation counter is used in measuring radioactivity. Add a note on autoradiography. [12]

Q.5. Write short notes on **(Any three)**:

- a) Multiple reaction monitoring in LC-MS technique [4]
- b) Working of GM counters [4]
- c) Radioactive tracers [4]
- d) Biological magnification [4]
- e) *Prodrug* [4]
