(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 2129 Roll No. | | | | | | | | | | |

B.Tech.

(SEM. V) ODD SEMESTER THEORY EXAMINATION 2013-14

MODERN ANALYTICAL TECHNIQUES

Time : 3 Hours *Total Marks : 100*

Note :– Attempt **all** questions as directed. All questions carry equal marks.

1. Attempt any **two** of the following :
   (a) What do you understand by Quality Management ? How does GLPs assist in quality management ?
   (b) What are the steps of Quantitative Analysis ? Briefly describe.
   (c) What are the major parameters used in Qualitative and Quantitative analyses ? What are the advantages.
2. Attempt any **two** of the following :
   (a) 'US-VIS spectrophotometer is the heart of biochemical research'. Illustrate the statement with the help of suitable facts and examples.
   (b) Write a note on Atomic Absorption Spectroscopy. Giving suitable diagram illustrate its functioning.
   (c) Briefly describe the functioning of MALDI-TOF or X-ray diffraction. How does it contribute to qualitative analysis of compounds ?

3. Attempt any **two** of the following :

   (a) Describe the process of Centrifugation. What are the parameters which influence the sedimentation of particles during centrifugation ? Establish relationship among them.

   (b) What do you understand by Dialysis ? How does it contribute to separation of enzymes ? What are the important parameters for selection of suitable dialysis tubes ?

   (c) Describe the principle and advantages of con focal scanni. laser microscopy.

4. Attempt any **two** of the following :

   (a) What do you understand by Chromatography ? With the help of suitable diagrams describe the principle and factor governing resolution in HPLC.

   (b) What is Affinity Chromatography ? Discuss the principle and its role in rapid purification of biomolecules.

   (c) Define the term Blotting. Giving suitable diagrams describe the process of Western Blotting.

5. Attempt any **two** of the following :

   (a) What are Biosensors ? How do they function ? Describe the principle and advantages of any biosensor studied by you.

   (b) How can redox enzymes be used in designing biosensors ? Mention the advantages of using non-invasive biosensors over invasive biosensors.

   (c) Describe the role of biosensors in *in vivo* determination of metabolites. With the help of suitable example and diagram support your answer.