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B.Sc. 3rd Semester Examination,  
December-2011 (New Scheme)

BIOTECHNOLOGY

Paper-BT-302

Bioanalytical Tools

1051610015

*Time allowed : 3 hours]*

*[Maximum marks : 50*

*Note : Question No 1 is compulsory. Attempt any one question from each unit. (I-IV).*

1. (i) Expand HPLC and PAGE. 1×10
- (ii) Western blotting is used for transfer of \_\_\_\_\_ fragments.
- (iii) Enlist any two anti foam agents.
- (iv) The mobile phase used in Gas Chromatography is a \_\_\_\_\_.
- (v) Sub-cellular organelles can be isolated by \_\_\_\_\_ centrifugation.
- (vi) What is the function of TEMED in PAGE ?

60273-P-3-Q-9 (11)

[P.T.O.]

(2)

60273

(vii) Which ligand is used specifically for separation of Biotin-containing enzymes by affinity chromatography ?

(viii) Define fluorescence.

(ix) What do you understand by "Limit of Resolution" in microscopy ?

(x) What is the range of pH scale ?

#### Unit-I

2. State and explain the principle of Phase Contrast microscopy. How is it different from simple microscopy ? 6+4
3. Differentiate between Transmission Electron Microscopy and Scanning Electron Microscopy. 10

#### Unit-II

4. State and explain Beer-Lambert's Law. Give any two examples of qualitative and quantitative applications of UV-Visible spectrophotometry. 6+4

60273

(3)

60273

5. Enlist and briefly explain different types of centrifugation techniques used in bio analytical laboratories. 10

#### Unit-III

6. How is 2-D chromatography different from 3-D chromatography ? Explain the significance of  $R_f$  in chromatography. 6+4
7. Explain the principle and applications of Ion-Exchange Chromatography. 10

#### Unit-IV

8. Differentiate between Native PAGE and SDS-PAGE. Give the principle of Iso-electric focussing. 6+4
9. Write notes on :
  - (a) Air Lift fermentor
  - (b) Continuous Stirred Tank Fermentor. 5×2

60273