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**B.Sc. 3rd Semester (Pass) (New Scheme) Examination,****November-2018****BIOTECHNOLOGY**8132127**Paper-BT-302****Bio Analytical Tools**Time allowed : 3 hours][Maximum marks : 40

**Note :** *There are nine questions in all. Question No. 1 is compulsory. Students are required to attempt four more questions by selecting one question from each unit.*

1. Attempt the following questions :  $8 \times 1 = 8$
- (i) What is the use of optical system in microscopy ?
  - (ii) Write two uses of TEM.
  - (iii) Define centrifugation.
  - (iv) Write range of visible light.
  - (v) What are cation exchangers ?
  - (vi) Name the stationary phase in paper chromatography
  - (vii) Write two applications of biosensors
  - (viii) Name the denaturing used in SDS-PAGE.  $8 \times 1 = 8$

**Unit-II**

2. (a) Explain the principle and working fluorescence microscopy. 5
- (b) Define magnification and resolving power of a microscope. 3

3. Discuss in detail the absorption and emission spectroscopy. 8

### Unit-III

4. Write note on :
- (a) Lambert-Beer's law 5
  - (b) Applications of centrifugation 3
5. Explain various cell fractionation techniques in detail. 8

### Unit-III

6. (a) Explain the principle of ion exchange chromatography. 5
- (b) Write applications of affinity chromatography. 3
7. Explain the principle and applications of paper chromatography. 8

### Unit-IV

8. What is electrophoresis ? Explain the process of protein separation by SDS-PAGE. 8
9. Write note on :
- (a) Western blotting
  - (b) Isoelectric focusing 4×2=8