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Total No. of Pages : 02

Total No. of Questions : 09

**B.Tech.(BT) (2011 Onwards) (Sem.-6)****BIOANALYTICAL TECHNIQUES**

Subject Code : BTBT-605

Paper ID : [A2287]

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTION TO CANDIDATES :**

1. **SECTION-A** is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. **SECTION-B** contains **FIVE** questions carrying **FIVE** marks each and students have to attempt any **FOUR** questions.
3. **SECTION-C** contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.

**SECTION-A****Q1 Answer briefly :**

- a) What is Cerenkov counting?
- b) Explain Stock's shift.
- c) What are the basic components of a compound microscope?
- d) Explain about the working principal of electrophoresis.
- e) Differentiate between TEM and SEM.
- f) What kind of spectrum do you expect from methanol?
- g) Explain the working of a Geiger-Muller counter.
- h) What do you understand by density gradient centrifugation?
- i) Briefly explain CHEF technique.
- j) What is capillary electrophoresis?

### SECTION-B

- Q2 Describe the underlying principal of an ultracentrifuge. Explain about preparative and analytical centrifugation.
- Q3 What is confocal microscopy? Explain its basic principal and different components of a confocal microscope. Also states its applications.
- Q4 What is 2-D electrophoresis? What is principle of separation using isoelectric focusing? Describe the uses of 2-D electrophoresis.
- Q5 Describe the working and principal of ion-exchange chromatography. How is it different from gel- exclusion chromatography?
- Q6 Write the principle of CD spectroscopy. How it is useful in biological and chemical sciences?

### SECTION-C

- Q7 What is electron microscopy? How is contrast generated in specimens of electron microscopy? Compare magnification and resolution of electron microscopy and light microscopy
- Q8 a) Explain the principal and working of MALDI-TOF. Briefly describe its applications.  
b) Write principle, construction and applications of fluorescence microscope.
- Q9 Explain the principal and working of liquid and solid scintillation counters. Also explain what is quenching? Write its types in scintillation counting and ways to overcome quenching.