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B. Sc. / M.Sc. (Integrated Biotechnology Course) (CBCS) (Sem. III) Examination
March/April - 2015
Instrumentation & Techniques - I (Core Course - I) (New Course)

Time : 2 Hours]  [Total Marks : 50

Instructions : (1)

(2) Figures to the right indicate full marks.
(3) Draw neat and labeled diagrams wherever necessary.

1 Answer following questions in short. 10
   (1) What do you meant by centrifugal force?
   (2) Define transmittance with mathematical expression.
   (3) State Beer’s law.
   (4) Give definition of Svedberg unit.
   (5) Write the principle of dark field microscopy.
   (6) Define : Reference electrode
   (7) Give various units of radioactivity.
   (8) Define: Scintillation
   (9) What is the meaning of numerical aperture?
   (10) Define potentiometry.

2 (a) Describe principles and uses of fluorescence microscopy. 7

OR

(a) Discuss the principle of phase contrast microscopy with 7 applications.

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(b) Write the applications of radioisotopes. (any six)  

OR

(b) Give the advantages of Scintillation counter over Geiger-Muller Counter.

3  (a) Write a detailed note on phosphorescence.  

OR

(a) Discuss the laws of photometry in detail.

(b) Write a detailed note on construction, working and applications of calomel electrode.

OR

(b) Write a note on biomembrane electrode.

4  Answer any two of following.

(a) Explain the basic principle of sedimentation.

(b) Give the detailed information of different types of rotors.

(c) How will you determine the molecular weight using ultra. centrifugation?