Code No: R09222302 **R09** **Set No. 2**

II B.Tech II Semester Examinations,APRIL 2011
ANALYTICAL METHODS IN BIO TECHNOLOGY
Bio-Technology

Time: 3 hours **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Define mean and median and their significance in experimental anlaysis.
   (b) BSA protein sample was estimated six times from a standard solution containing 10mg/100ml of BSA and the values are 9.4,9.5,9.6,9.8.10.1,10.3.calculate the mean and median for the data. [7+8]
2. Write about different types of detectors used in Spectrophotometer. [15]
3. Discuss about different types of radioactive decay. [15]
4. Define specific rotation and molecular rotation. Write the theory of circular dichromism spectroscopy. [15]
5. Write the principle of working of polarograph. What are various applications of using Polarography. [15]
6. Write the principle of absorption and emission Spectroscopy. [15]
7. Write the principle of Electrophoresis. Discuss about capiuary electrophoresis. [15]
8. (a) Calculate the percentage composition of the mixture of ethane, propane and butane in gas chromatography if the seperated peak areas are 45,15,30cms.
   (b) What are the compound that are generally separated by Gas Chromatography? [7+8]

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Code No: R09222302 **R09** **Set No. 4**

II B.Tech II Semester Examinations,APRIL 2011
ANALYTICAL METHODS IN BIO TECHNOLOGY
Bio-Technology

Time: 3 hours **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

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1. Discuss about Jablonski diagram and its significance. [15]
2. Define circular dichromism,instrumentation, applications of CD in structural determination. [15]
3. Write the working principle of voltametry and discuss a voltammogram. [15]
4. Explain Radioactivity. Discuss about Geiger-Muller counter. [15]
5. Write the principle of working, light source, magnification of Phase contrast microscope. [15]
6. Write about 2D gel electrophoresis and its applications. [15]
7. (a) Expalin how to improve resolution of compound separtion on a chromatographic column.
   (b) Calculate H and N for a column of 10 meters length, base elution curve is o.5 and column width is 10 cm. [7+8]
8. (a) Calculate the absorbance of solution with 10 mmoles of compound with transmittence 54% and in 1 cm cuvett.
   (b) Write the principle of emission spectroscopy. [8+7]

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Code No: R09222302 **R09** **Set No. 1**

II B.Tech II Semester Examinations,APRIL 2011
ANALYTICAL METHODS IN BIO TECHNOLOGY
Bio-Technology

Time: 3 hours **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

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1. Discuss the principle of filtration. What are various techniques of Filtration used in product recovery? [15]
2. Write about the instrumentation and working of Fluorescent microscope. [15]
3. Define Circular dichromism. Give a schematic diagram of Circualr dichrometer. [15]
4. Write the principle of working of Amperometry. Discuss the basic components of an apparatus used in amperometric titrations with a schematic diagram. [15]
5. Discuss about different types of molecular energies associated with a molecule with relevance to molecular spectroscopy. [15]
6. Write about various applications of Gas Chromatography. [15]
7. Discuss the properties of alpha, Beta and Gammarays. [15]
8. (a) what is the absorbance values for the following transmittance.
   i. 50%
   ii. 65%
   iii. 75%
   iv. 100%
   (b) What is λmax and how to obtain λ max of a compound in Spectroscopy. [8+7]

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Code No: R09222302 **R09** **Set No. 3**

II B.Tech II Semester Examinations,APRIL 2011
ANALYTICAL METHODS IN BIO TECHNOLOGY
Bio-Technology

Time: 3 hours **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

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1. Define circular dichromism. Write the applications of Circular dichromism for biomolecules. [15]
2. Write the principle of sedimentation. Explain about molecular weight determination by sedimentation techniques. [15]
3. What is Column Chromatography? Write a note on Retention time, Distribution constant, column efficiency, Theoretical plate number. [15]
4. What is electromagnetic spectrum? Discuss different portions of electromagnetic spectrum. [15]
5. Write about Absorption spectra, Fluorescence spectra and Emission spectra. [15]
6. Write about the instrumentation and working of Transmission Electron microscope. [15]
7. (a) Calculate the concentration of a pesticide sample in a solution which had a diffusion current of 20ua. The standard solution of the sample gave a diffusion current of 35.4 ua at at the sample concentration of 500ugms/ml.
   (b) Write the similarity and difference(s) between Polarimetry and Amperometry. [8+7]
8. Discuss about interaction of nuclear radiation with matter. [15]

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