

Code: 9A23402

1

II B. Tech II Semester (R09) Regular &amp; Supplementary Examinations, April/May 2012

**ANALYTICAL METHODS IN BIOTECHNOLOGY**

(Biotechnology)

Time: 3 hours

Max Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 Explain in detail electromagnetic spectrum.
- 2 Explain methods of expressing accuracy and precision.
- 3 Explain Beer- Lambert's law and its deviations.
- 4 Write in detail about x-ray diffraction and its applications.
- 5 Write short notes on:  
(a) Principles of centrifugation.  
(b) Electrophoresis of proteins.
- 6 Write the working principle and application of HPLC.
- 7 Write in detail about on – line monitoring of:  
(a)  $P^H$ .  
(b) Temperature.
- 8 Write in detail about types of radioactive rays and their properties.

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- 1 Explain interaction of electromagnetic radiation with matter.
- 2 Explain scanning electron microscopy and its applications.
- 3 Explain in detail the instrumentation and working of UV- visible spectrophotometer and its applications.
- 4 Write in brief about:  
(a) ORD.  
(b) NMR.
- 5 Write notes on:  
(a) Ultra centrifugation.  
(b) LD gel electrophoresis.
- 6 Write notes on:  
(a) Temperature programming.  
(b) Ion exchange chromatography.
- 7 Write an account of:  
(a) Dissolved oxygen.  
(b) Agitation sensors.
- 8 Write briefly about:  
(a) Units of radio activity.  
(b) GM counters.

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- 1 Write short notes on:  
(a) Jablonski diagrams.  
(b) Molecular energies.
- 2 Write short notes on:  
(a) Confidence limits.  
(b) Flow cytometry.
- 3 Explain in detail the principles and applications of NMR.
- 4 Explain in detail the hydrodynamic methods of separation and their applications.
- 5 Explain in detail the principle and applications of ESR.
- 6 Write the principle of gas-chromatography and its applications.
- 7 Explain on-line monitoring of :  
(a) Temperature.  
(b) Dissolved oxygen.
- 8 Write an essay on the application of radio isotopes to human welfare.

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- 1 Write short notes on:  
(a) Electromagnetic spectrum.  
(b) Classification of instrumental methods.
- 2 Write short notes on:  
(a) Precision and accuracy.  
(b) Inverted microscope.
- 3 Write in detail about UV-visible spectrophotometer and its applications.
- 4 Write notes on:  
(a) X-ray diffraction.  
(b) Circular dichromism.
- 5 Write in detail the electrophoretic separation of nucleic acids.
- 6 Write an account of:  
(a) GPC.  
(b) First family detectors.
- 7 Explain on-line monitoring of:  
(a)  $P^H$ .  
(b) Agitation sensors.
- 8 What is radioactivity? Write the application of radioisotopes to the welfare of mankind.

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