

B.Tech II Year II Semester (R09) Supplementary Examinations May/June 2017

**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 (a) Explain various interactions of electromagnetic radiation with matter.  
(b) Draw and explain the Jablonski diagram and its biological significance.
- 2 (a) Give the concept and optical design of inverted microscope.  
(b) Explain sample preparation techniques for transmission electron microscope.
- 3 (a) Give the principle and working of UV-visible spectrophotometer.  
(b) Explain the instrument design and operation of atomic absorption spectroscopy.
- 4 (a) What is Bragg's diffraction condition?  
(b) Give the principle and working of powder X-ray diffraction.
- 5 (a) Explain the ultracentrifugation and filtration process.  
(b) Demonstrate the pulse field electrophoresis technique.
- 6 (a) Classify and explain the important chromatographic methods.  
(b) Mention the uniqueness of each chromatographic method.
- 7 (a) Give a detailed analysis of online monitoring and control devices.  
(b) Demonstrate the block diagram and function of any analytical sensor.
- 8 (a) Mention the theory of radioactivity.  
(b) Explain the principle, instrument design and working of GM counter.

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