

A 320

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2005.

Seventh Semester

Industrial Biotechnology

IB 432 — ANALYTICAL TECHNIQUES IN BIOTECHNOLOGY

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

Explain the following :

1. Fluorescence microscopy.
2. Role of proteinase K in DNA isolation.
3. Differential interference contrast.
4. Steps of a PCR.
5. Properties of IgG.
6. TGC.
7. Pi of a protein.
8. Fluorescent antibodies.
9. Titre.
10. Flow injection analysis.

PART B — (5 × 16 = 80 marks)

11. (i) Describe principle of pulse field gel electrophoresis. What are its utilities?
(ii) Describe procedure of DNA finger printing.
12. (a) Describe the principle of an electron microscope. What are the major advantages of electron microscopes over light microscopes? What type of electron microscope would be used to view three dimensional features of a cell?

Or

- (b) Describe a method for protein and DNA estimation.

13. (a) Name the chemical form of the sugar which we eat day today. How you will estimate reducing sugars?

Or

- (b) What is automatic DNA sequencing? Describe the procedure for automatic DNA sequencing and also illustrate its merit over mechanical procedures.

14. (a) What are monoclonal antibodies? How monoclonal antibodies are generated? What are uses of monoclonal antibodies?

Or

- (b) Name any widely used immunological techniques for identification of pathogens and other antigenic substances. What is basic principle of ELISA. How direct ELISA differ from indirect ELISA?

15. (a) What are standard procedures of biomass analysis? Describe procedure for measurement of BOD and COD in waste waters.

Or

- (b) What is principle of SDS-PAGE? How it differs from native gel? How molecular weight of a particular protein can be determined of a given protein?
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