



[Time: 3 Hours]

[Max. Marks: 100]

**PHARMACEUTICAL BIOTECHNOLOGY - II**

**(RS 2 & RS 3)**

**Q.P. CODE: 9314**

Your answers should be specific to the questions asked.  
Draw neat labeled diagrams wherever necessary. Answer all questions

**LONG ESSAY (Answer any FOUR)**

**4 X 25 = 100 Marks**

1. Write notes on:
  - a) Importance of bioinformatics
  - b) Interleukins
  - c) Urokinase

**(10+7+8 = 25)**
2.
  - a) Write a note on isolation and purification of enzymes
  - b) Enzyme immobilization methods
  - c) Pregnancy test

**(10+10+5 = 25)**
3.
  - a) Explain the biosynthesis of Tetracycline
  - b) Write the applications of Genetic engineering in biotechnology
4. Explain the techniques involved and significances of monoclonal antibodies and plant cell culture
5.
  - a) Discuss current state of vaccines for HIV and malaria.
  - b) Discuss the application of enzyme engineering
  - c) Host cells on gene cloning.

**(7+8+10 = 25)**
6.
  - a) Biosynthesis of vitamin B12
  - b) Discuss the vaccine production in developing countries

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