

Roll No .....

**PY-704**

**B.Pharmacy VII Semester**

Examination, December 2016

**Pharmaceutical Biotechnology**

*Time : Three Hours*

*Maximum Marks : 70*

- Note:* i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.  
ii) All parts of each question are to be attempted at one place.  
iii) All questions carry equal marks, out of which part A and B (Max. 50 words) carry 2 marks, part C (Max. 100 words) carry 3 marks, part D (Max. 400 words) carry 7 marks.  
iv) Except numericals, Derivation, Design and Drawing etc.

1. a) Define antibodies.  
b) Classify different types of antibodies.  
c) How cellular immunity differentiate against humoral immunity?  
d) Describe the different antigen antibody reactions with their applications.

OR

Write a note on Hypersensitivity Reaction.

2. a) Define enzyme immobilization.  
b) Discuss about various techniques of enzyme immobilization.

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- c) Enlist various factor affecting enzyme kinetics.  
d) Describe production and application of enzyme Penicillinase.

OR

Write about a note on vaccine.

3. a) Define Transformation and Transduction.  
b) What is the Mutant?  
c) Write pharmaceutical use of hyaluronidase.  
d) Explain recombinant DNA Technology by flow diagram.

OR

Describe the different techniques of Protoplast fusion and their application.

4. a) What are the different reactions mediated by micro-organisms?  
b) What is the Gene Cloning?  
c) Write a note of biotechnological production of Humulin.  
d) Describe different biotransformation process with reference to steroids.

OR

Explain different method of gene delivery in gene therapy.

5. a) Draw a Diagram of Ideal Fermenter.  
b) Discuss different types of Fermenters.  
c) Briefly describe the factors affecting the designing of fermenters.  
d) Describe fermentative production of Alcohol with suitable diagram.

OR

Describe fermentative production of Penicillin.

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