

Total No. of Questions : 6]

SEAT No. :

P1463

[5049]-607

[Total No. of Pages : 2

T. Y. B. Pharmacy

PHARMACEUTICAL BIOTECHNOLOGY

(2013 Pattern) (Semester - VI)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Answers to the two Sections should be written in separate books.*
- 2) *Neat diagrams as well as flow-charts must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *All questions are compulsory.*

SECTION - I

Q1) Explain steps involved rDNA technology. Add a note on-Production of rDNA constructs and uses for Human insulin. **[10]**

OR

What do you understand by Gene Cloning? What are various types of cloning vectors involved in the process? Describe the role of expression vectors in recombinant DNA technology with suitable examples?

Q2) Answer ANY FIVE of the following: **[15]**

- a) Define the following:
 - i) Biotechnology.
 - ii) Recombinant DNA and
 - iii) Enzyme Immobilization.
- b) Enlist applications of biotechnology to Pharmaceutical Industry.
- c) Write significance of enzymes acting on DNA.
 - i) Restriction endonucleases
 - ii) S1 nuclease
 - iii) Alkaline phosphatase
- d) How will you transfer gene by conjugation method?
- e) Give principle and applications involved in Southern blotting technique or gel electrophoresis.
- f) Describe in brief about gene synthesis.
- g) Explain the steps involved in isolation of nucleic acid.

P.T.O.

Q3) Write short notes on ANY TWO of the following: [10]

- a) Gene machine.
- b) Cloning vectors-pUC 19 and pBR 322.
- c) Site directed mutagenesis.
- d) DNA Fingerprinting.

SECTION - II

Q4) What is hybridoma technology? Explain the steps involved in the production of monoclonal antibodies and applications. [10]

OR

Give details of strain improvement, media, different stages of fermentation and product recovery in production of *any one* antibiotic of your interest.

Q5) Answer ANY FIVE of the following: [15]

- a) Explain the concept of enzyme immobilization. Comment on its applicability with suitable examples.
- b) Give benefits of transgenic animal with suitable examples.
- c) Enlist various criteria to be considered in designing of a fermentor. Draw a neat schematic labelled diagram of fermentor.
- d) Enlist methods for immobilization of enzymes. Add a note on applications of enzyme immobilization.
- e) Enumerate the steps involved in crop preservation with its significance.
- f) Write a detailed account on production of Somatotrophin by rDNA technology.
- g) How to control foam during fermentation?

Q6) Write short notes on ANY TWO of the following: [10]

- a) Vitamin production by fermentation.
- b) Down stream processing.
- c) Interferon production by rDNA technology.
- d) Genomic library.

