B.Pharm Even Semester Examination, May, 2025

PHARMACEUTICAL SCIENCES

(6th Semester)

Course No: BP-605T

(Pharmaceutical Biotechnology)

FM: 75

Time: 3 Hours

The figures in the right margin indicate full marks for the question

I. A. Choose the correct answer of the following: 1×10=10

i. Which is not a method of covalent bonding, in the case of enzyme immobilization?

a. Electro-deposition

b. Peptide bond

c. Diazoation

d. Polyfunctional agent

ii. Penicillinase is mainly obtained from ——

a. *Aspergillus oryzae*

b. *Bacillus lichenifomis*

c. *Bacillus megatherium*

d. *Mucor miehei*

iii. "Cohesive sticky ends" are present in —- vector

a. Phage M13 vector

Turn Over

b. Bacteriophage lambda

c. pUC

d. pBR322

iv. The type of immunity developed due to IgG transmission from mother to baby *via* mother's milk ——

a. Naturally acquired, active immunity

b. Artificially acquired, active immunity

c. Naturally acquired, passive immunity

d. Artificially acquired, passive immunity

v. "Complementarity determining region" is present in…. of immunoglobulin.

a. Only in the variable domain of heavy chain

b. Only in the constant domain of heavy chain

c. Constant domain in both heavy and light chains

d. Variable domain in both heavy and light chains

vi. Immuno-complex is formed in — type of hypersensitivityreaction.

a. Autoimmune hemolytic anemia

b. Arthus reaction

c. Atopy

d. Tuberculin-type

(d) Discuss about different types of ELISA. Explain it with one example. 4+1

(e) Microbial transformation of steroids. Discuss with examples. 5

(f) Discuss the preparation of toxoids and tuberculin. 2+3

(g) Explain the production of Citric acid. 5

(h) Elaborate on various controls in a large-scale production fermenter with a neat labelled diagram. 5

(i) Write about microbial Transduction with focusing on lytic and lysogenic cycles. 5

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I. B. Write the objective type questions of the following: 2×5=10

(a) Define hybrid antibiotics. Mention *two* examples.

(b) Mention the mediators involved in innate and adaptive immunity.

(c) Discuss Immunoglobulin M (IgM).

(d) Write the mechanism ofdelayed-type hypersensitivity (DTH).

(e) Give examples (*any two*) of reduction types of biotransformation.

II. Write long answers of the following (*any two*): 10×2=20

(a) Discuss the general steps in the production of enzymes. Explain the production of catalase enzyme and mention its application. 5+4+1

(b) Elaborate on different types of chromosomal mutations with examples. (5+5)

(c) Explain the collection, processing and storage of whole human blood, driedhuman plasma, and plasma substitutes. 4+3+3

III. Write short answer of the following (any seven): 5×7=35

(a) Discuss the production of Amylase enzyme. (5)

(b) Discuss about cross-linking and entrapment types of enzyme immobilization. Mention the application of enzyme immobilization in pharmacy. 2+2+1

(c) Write the requirements of the vector. Discuss plasmid and yeast artificial chromosomes. 1+2+2

vii. "Triton-X 100" is used in — type of inactivation of microorganisms.

a. Chemical treatment

b. Solvent treatment

c. Acidic pH

d. Basic pH

viii. When the duplicated regions became attached to different nonhomologous chromosomes, the mutation is called —

a. Reverse tandem duplication

b. Displaced duplication

c. Transposed duplication

d. Extra-chromosomal duplication

ix. Mueller and Miller medium is used in the preparation of ——

a. Toxoids

b. Antitoxin

c. Immune sera

d. Tuberculin

x. Biotransformation of tryptophol from tryptamine is carried out by ——

a. *Corynebacterium aurantiacum*

b. *Nocordia corallina*

c. *Streptomyces roseochromogenes*

d. *Aspergillus niger*