

**B PHARM**  
**(SEM VI) THEORY EXAMINATION 2022-23**  
**PHARMACEUTICAL BIOTECHNOLOGY- THEORY**

Time: 3 Hours

Total Marks: 75

Note: Attempt all Sections. If require any missing data; then choose suitably.

**SECTION A**

1. Attempt all questions in brief.

10 x 2 = 20

- a. Name the microorganisms used in the production of enzymes amylase and penicillinase.
- b. What are the restriction end nucleases? Give an example.
- c. What is a toxoid vaccine? Give an example.
- d. Erythroblastosis foetalis is an example of which type of hypersensitivity reaction?
- e. Define the terms immune stimulation and immune suppression with an example of each.
- f. What is the storage temperature of refrigerated vaccines?
- g. What is ELISA? Give an example of its application.
- h. Give two differences in the genetic organization of eukaryotes and prokaryotes.
- i. Name two important parameters that need to be controlled while operating any fermenter. <https://www.aktuonline.com>
- j. What is a plasma substitute? Give one example.

**SECTION B**

2. Attempt any two parts of the following:

2 x 10 = 20

- a. Discuss the working of a biosensor highlighting its various components with a neat and labeled diagram.
- b. Illustrate in detail about the process of PCR and write some of its important applications.
- c. Describe the processing and storage of whole human blood and dried human plasma.

**SECTION C**

3. Attempt any five parts of the following:

7 x 5 = 35

- a. Discuss the various methods involved in enzyme immobilization with examples.
- b. Describe the process of manufacturing human insulin using rDNA technology and genetic engineering.

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**(SEM VI) THEORY EXAMINATION 2022-23**  
**PHARMACEUTICAL BIOTECHNOLOGY**

*Time: 3 Hours**Total Marks: 75***Note:** Attempt all Sections. If require any missing data; then choose suitably.

**SECTION A**

**1. Attempt all questions in brief.** **10 x 2 = 20**

- a. Explain role of catalase and peroxidase enzymes.
- b. What is protein engineering.
- c. Define vectors along with two examples.
- d. What do you mean by PCR.
- e. Define cellular and humoral immunity.
- f. Define monoclonal antibodies.
- g. Explain mutation and mutagens with examples.
- h. Explain ELISA.
- i. Define fermenter and their types.
- j. Write name of any two microorganisms used in production of citric acid.

**SECTION B**

**2. Attempt any two parts of the following:** **2 x 10 = 20**

- a. Explain biosensors and their types along with applications.
- b. Explain in detail about production and purification of monoclonal antibodies by hybridoma technology.
- c. Explain in detail PCR and its applications.

**SECTION C**

**3. Attempt any five parts of the following:** **5 x 7 = 35**

- a. Explain scope and application of pharmaceutical biotechnology.
- b. Write in detail different methods of enzyme immobilization.
- c. Write in detail the method of preparation of insulin by recombinant DNA technology.
- d. Differentiate between prokaryotes and eukaryotes.
- e. Explain the production of vitamin B12 by fermentation.
- f. Explain general method of preparation and storage of bacterial vaccines.
- g. Explain different types of hypersensitivity reactions with example.



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**BPHARM**  
**(SEM VI) THEORY EXAMINATION 2023-24**  
**PHARMACEUTICAL BIOTECHNOLOGY THEORY**

**TIME: 3 HRS****M.MARKS: 75**

**Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.

**SECTION A****1. Attempt all questions in brief.****10 x 2 = 20**

|    |                                            |
|----|--------------------------------------------|
| a. | Write the industrial use of catalase.      |
| b. | Write the industrial use of penicillinase. |
| c. | Define interferon.                         |
| d. | Write the functions of MHC.                |
| e. | Write the principle of western blotting.   |
| f. | Define conjugation.                        |
| g. | Write short note on storage of vaccines.   |
| h. | Define biosensors.                         |
| i. | Write the principle of PCR.                |
| j. | Define humoral immunity.                   |

**SECTION B****2. Attempt any two parts of the following:****2 x 10 = 20**

|    |                                                                   |
|----|-------------------------------------------------------------------|
| a. | How Recombinant DNA technology is helpful in vaccine manufacture. |
| b. | Compare the Genetic organization of Eukaryotes and Prokaryotes.   |
| c. | Describe Large scale production fermenter design.                 |

**SECTION C****3. Attempt any five parts of the following:****7 x 5 = 35**

|    |                                                               |
|----|---------------------------------------------------------------|
| a. | Give detail of production of Vitamin-B12.                     |
| b. | Write the role of transduction in pharmacy.                   |
| c. | Explain hypersensitivity reactions.                           |
| d. | Write the principle and applications of hybridoma technology. |
| e. | Discuss the physical methods of sterilization.                |
| f. | Enlist various blood products.                                |
| g. | Write a note on plasma substitutes.                           |



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**BPHARM**  
**(SEM VI) THEORY EXAMINATION 2024-25**  
**PHARMACEUTICAL BIOTECHNOLOGY– THEORY**

**TIME: 3 HRS****M.MARKS: 75**

**Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.

**SECTION A****1. Attempt all questions in brief.****10 x 2 = 20**

|    |                                             |
|----|---------------------------------------------|
| a. | Define biosensor.                           |
| b. | Write a short note on amylase.              |
| c. | Write uses of lipase.                       |
| d. | How biotechnologically insulin is produced? |
| e. | Define hypersensitivity.                    |
| f. | Define conjugation.                         |
| g. | Give various types of mutation.             |
| h. | Write the source of penicillin.             |
| i. | Write the use of dried human plasma.        |
| j. | Write the uses of glutamic acid.            |

**SECTION B****2. Attempt any two parts of the following:****2 x 10 = 20**

|    |                                                              |
|----|--------------------------------------------------------------|
| a. | Discuss the role of biotechnology in pharmaceutical science. |
| b. | Explain the role of Recombinant DNA technology in pharmacy.  |
| c. | Discuss the methods of sterilization used in biotechnology.  |

**SECTION C****3. Attempt any five parts of the following:****7 x 5 = 35**

|    |                                                                               |
|----|-------------------------------------------------------------------------------|
| b. | Give a brief introduction of protein engineering employed in pharmacy.        |
| c. | Give a brief introduction of polymerase chain reaction.                       |
| d. | Define immunity; give salient features of humoral immunity.                   |
| e. | Write the principle of hybridoma technology; how it incorporates in pharmacy. |
| f. | Discuss the principle and pharmaceutical importance of ELISA.                 |
| g. | Give the salient features of a typical fermenter.                             |
|    | Write the method of collection and processing of whole human blood.           |



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BPHARM

(SEM. VI) THEORY EXAMINATION 2025-26

PHARMACEUTICAL BIOTECHNOLOGY– THEORY

TIME: 3 HRS

M.MARKS: 75

**Note:** 1. Attempt all Sections. If require any missing data; then choose suitably.**SECTION A**1. Attempt *all* questions in brief.

10x2 = 20

|     |                                                                |
|-----|----------------------------------------------------------------|
| (a) | What is the applications of enzyme immobilization?             |
| (b) | Suggest the roles of lipase and catalase.                      |
| (c) | What are the functions of DNA ligase?                          |
| (d) | State the mode of action of ELISA                              |
| (e) | What is hapten?                                                |
| (f) | Briefly state the various types of hypersensitivity reactions. |
| (g) | Mention the storage condition of polio vaccine                 |
| (h) | Define monoclonal antibodies                                   |
| (i) | How will you store BCG Vaccine?                                |
| (j) | What is the working principle of a biosensor?                  |

**SECTION B**2. Attempt any *two* of the following:

2 x 10 = 20

|     |                                                                                                                  |
|-----|------------------------------------------------------------------------------------------------------------------|
| (a) | Elucidate the structure and function of MHC. Explain in details the various types of hypersensitivity reactions. |
| (b) | Explain in detail Western Blotting . Write down the genetic organization of eukaryotes.                          |
| (c) | Suggest the role of recombinant DNA Technology and genetic engineering in the production of hepatitis B Vaccine  |

**SECTION C**3. Attempt any *five* part of the following:

7 x 5 = 35

|     |                                                                                                                                                                            |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (a) | Narrate the various steps involved in the production of enzyme highlighting the process of enzyme immobilization techniques.                                               |
| (b) | Describe the processes of transformation, transduction, conjugation and applications of microbial biotransformation.                                                       |
| (c) | Demonstrate the design of large scale production fermenter and outline its various controls.                                                                               |
| (d) | Explain with a flow chart the process of production and purification of Penicillin G by the process of fermentation. Suggest the storage requirements of dry human plasma. |
| (e) | Explain the various types of blood products and plasma substitutes alongwith their specific uses.                                                                          |
| (f) | Narrate the working and applications of biosensors in Pharmaceutical Industries.                                                                                           |
| (g) | Write short notes on microbial biotransformation of steroids                                                                                                               |