Total No. of Questions: 22

Enrollment No : _____

MEDICAPS UNIVERSITY

Faculty of Pharmacy

End Semester Examination May 2025

PY3CO27 Pharmaceutical Biotechnology

Programme	:	B. Pharm.	**Branch/Specialisation**	:	-
Duration	:	3 hours	**Maximum Marks**	:	75

Note: *All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.*

Section 1 (Answer all question(s))

Q1. Write any two uses of microbes in the pharmaceutical industry. **Marks: 2 CO: 1 BL: 1**

Rubric	Marks
Any two uses of microbes in Pharmaceutical industry (each use carry1 mark)	2

Q2. Define protein engineering with its significance. **Marks: 2 CO: 1 BL: 1**

Rubric	Marks
Define protein engineering	1
significance of Protein engineering	1

Q3. What is the role of genetic engineering in the production of Insulin? **Marks: 2 CO: 2 BL: 1**

Rubric	Marks
Role of genetic engineering in the production of Insulin	2

Q4. Enlist any two products produced using rDNA technology. **Marks: 2 CO: 3 BL: 1**

Rubric	Marks
Any two products produced using rDNA technology. (each product carries 1 mark)	2

Q5. Define immunity. Name the antibody involved in Type- I hypersensitivity reactions. **Marks: 2 CO: 4 BL: 2**

Rubric	Marks
Define immunity.	1
Name the antibody involved in Type- I hypersensitivity reactions.	1

Q6. Write a full form of MHC and mention its function. **Marks: 2 CO: 4 BL: 1**

Rubric	Marks
Full form of MHC	1
MHC function.	1

Q7. What are plasmids? **Marks: 2 CO: 4 BL: 1**

Rubric	Marks
Plasmids- Definition	2

Q8. Define transformation and conjugation. **2 5 1**

Rubric	Marks
Define transformation	1
Define conjugation.	1

Q9. Write any two differences between batch and continuous fermentation. **2 6 2**

Rubric	Marks
Any two differences (Each difference one)	2

Q10. Name the commonly used microbes for production of citric acid and griseofulvin through fermentation process. **2 6 1**

Rubric	Marks
Commonly used microbes for production of citric acid and griseofulvin through fermentation process.	2

Section 2 (Answer any 2 question(s))

Marks CO BL

Q11. Discuss the methods and applications of enzyme immobilization. **10 2 2**

Rubric	Marks
Methods of enzyme immobilization	5
Applications of enzyme immobilization	5

Q12. Explain recombinant DNA technology with emphasizing the production of insulin. **10 3 2**

Rubric	Marks
Recombinant DNA technology with emphasizing the production of insulin.	10

Q13. Classify different types of biosensors with suitable examples and write an exhaustive note on Polymerase Chain Reaction (PCR). **10 3 1**

Rubric	Marks
Classify different types of biosensors with suitable examples.	5
Note on PCR (polymerase chain reaction).	5

Section 3 (Answer any 2 question(s))

Marks CO BL

Q14. Describe hybridoma technology with a note on its applications. **5 4 2**

Rubric	Marks
Hybridoma technology	3
Applications of hybridoma technology	2

Q15. Define hypersensitivity reactions. Explain different types of hypersensitivity reactions with example. **5 4 1**

Rubric	Marks
Define hypersensitivity reactions.	1
Explain different types of hypersensitivity reactions with example.	4

Q16. Discuss the types of immunity with suitable examples. **5 4 1**

Rubric	Marks
Types of immunity with suitable examples.	5

Section 4 (Answer any 2 question(s))

Marks CO BL

Q17. Discuss the principle and steps involved in ELISA. **5 5 2**

Rubric	Marks
Principle- ELISA	2
Steps involved in ELISA	3

Q18. Define the term mutation. Classify the types of mutations in detail. **5 5 2**

Rubric	Marks
Mutation definition	1
Types of mutations in detail	4

Q19. Explain microbial biotransformation in detail with example. **5 5 2**

Rubric	Marks
Microbial biotransformation with example.	5

Section 5 (Answer all question(s))

Marks CO BL

Q20. Write general requirement, study of media, equipment's and sterilization techniques of fermentation. **5 6 1**

Rubric	Marks
General requirement	1
Study of media	1
Equipment's of fermentation	1
Sterilization techniques of fermentation	2

Q21. Explain the collection, processing and storage of blood products and plasma substitutes. **5 6 2**

Rubric	Marks
Collection of blood products and plasma substitutes	1
Processing of blood products and plasma substitutes	2
Storage of blood products and plasma substitutes	2

Q22. Write a detailed note on large scale production of penicillin. **5 6 2**

Rubric	Marks
Large scale production of penicillin.	5

******