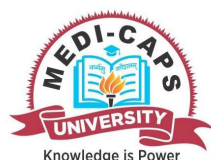


Enrollment No.....



Faculty of Pharmacy

End Sem (Even) Examination May-2022

PY3CO27 Pharmaceutical Biotechnology

Programme: B. Pharma

Branch/Specialisation: Pharmacy

Duration: 3 Hrs.

Maximum Marks: 75

Note: All questions are compulsory. Internal choices, if any, are indicated.

- Q.1 i. Which of the following is an example of Electrical Biosensor? **2**
 (a) Potentiometric (b) Amperometric
 (c) Conductimetric (d) All of these
- ii. Serine proteases is an- **2**
 (a) Alkaline proteases (b) Acidic proteases
 (c) Neutral proteases (d) None of these
- iii. Which of the following Restriction Endonuclease produces sticky or cohesive ends- **2**
 (a) PstI (b) EcoRI (c) SmaI (d) All of these
- iv. Example of Shuttle vector is- **2**
 (a) pSC101 (b) YEp24 (c) pBr322 (d) pUC 19
- v. The Effector cell for Cell Mediated Immunity is- **2**
 (a) T lymphocytes
 (b) B lymphocytes
 (c) Antigen presenting Cell
 (d) Major Histocompatibility Complex
- vi. The heavy chain of IgG is- **2**
 (a) μ (b) γ (c) δ (d) α
- vii. The transfer of DNA by direct cell to cell contact by the bacterium is called as- **2**
 (a) Transformation (b) Conjugation
 (c) Transduction (d) Transposable element
- viii. Fertility factor is denoted as- **2**
 (a) F⁺ (b) F⁻ (c) Hfr (d) F'
- ix. The carbon source of Fermentation Media is- **2**
 (a) Molasses (b) Malt Extract
 (c) Whey (d) All of these

- x. The microorganism used in the Production of Vitamin B12 is- **2**
 (a) Pseudomonas fluorescens
 (b) Streptomyces olivaceus
 (c) Penicillium chrysogenum
 (d) Penicillium notatum

- Q.2 Attempt any two:
- i. Define immobilization and explain different methods of immobilization with applications. **10**
- ii. Define rDNA technology. Write about the production of insulin by rDNA technology. **10**
- iii. (a) Define biosensor. Explain its types and mechanism of working of biosensors. **5**
 (b) Write a note on PCR. **5**

- Q.3 Attempt any seven: Two questions from each section is compulsory.

Section - A

- i. Describe the Production of monoclonal antibodies by Hybridoma technology. **5**
- ii. Write a note on structure of immunoglobulin. **5**
- iii. Describe different types of Hypersensitivity reactions. **5**

Section - B

- iv. Write a note on Transposable elements. **5**
- v. Discuss Microbial biotransformation. **5**
- vi. Write a brief note on ELISA with diagram. **5**

Section - C

- vii. Define fermentation, explain in detail the design and operation of conceptual fermentor. **5**
- viii. Write a short note on Fermentation of Penicillin. **5**
- ix. List out various blood products and describe collection, processing and storage of whole human blood. **5**

P.T.O.

Marking Scheme
PY3CO27 Pharmaceutical Biotechnology

Q.1	i.	Which of the following is an example of Electrical Biosensor? (d) All of these	2
	ii.	Which of the following Restriction Endonuclease produces sticky or cohesive ends- (b) EcoRI	2
	iii.	Example of Shuttle vector is- (b) YEp24	2
	iv.	The Effector cell for Cell Mediated Immunity is- (a) T lymphocytes	2
	v.	The heavy chain of IgG is- (b) γ	2
	vi.	The transfer of DNA by direct cell to cell contact by the bacterium is called as- (b) Conjugation	2
	vii.	Fertility factor is denoted as- (a) F+	2
	viii.	The carbon source of Fermentation Media is- (d) All of these	2
	ix.	The microorganism used in the Production of Vitamin B12 is- (b) Streptomyces olivaceus	2

Q.2		Attempt any two:	
	i.	Definition of immobilization	2 marks
		Different methods of immobilization	2 marks
		Explaining each method	4 marks
		Applications	2 marks
	ii.	Definition of rDNA technology	2 marks
		Description of insulin	2 marks
		Production of insulin by rDNA technology	6 marks
	iii.	(a) Definition of biosensor	1 mark
		Its types	2 marks
		Mechanism of working of biosensors	2 marks
		(b) PCR	1 mark
		Principles of PCR	2 mark
		Steps in PCR	2 mark

Q.3 Attempt any seven: Two questions from each section is compulsory.

Section - A

i.	Defining Hybridoma technology	1 mark	5
	HAT Medium	1 mark	
ii.	Production steps of monoclonal antibodies	3 marks	5
	Immunoglobulin	1 mark	
	Structure of immunoglobulin	2 marks	
	Explanation of Structure	2 marks	
iii.	Hypersensitivity reactions	1 mark	5
	Types of Hypersensitivity reactions	1 mark	
	Describe type of Hypersensitivity reactions	3 marks	

Section - B

iv.	Transposable elements	1 mark	5
	Types of Transposable elements	1 mark	
	Description	3 marks	
v.	Definition of Microbial biotransformation	2 marks	5
	Any 3 types (1 mark * 3)	3 marks	
vi.	ELISA	1 mark	5
	Types of ELISA	2 marks	
	Describe any one type of ELISA	2 marks	

Section - C

vii.	Definition of fermentation	1 mark	5
	Design of Fermentor diagrams	2 marks	
	Operation of fermentor	2 marks	
viii.	About Penicillin	1 mark	5
	Production Strain	1 mark	
	Fermentation Media	1 mark	
	Fermentation process parameters	1 mark	
	Product recovery	1 mark	
ix.	Various blood products	2 marks	5
	Describe collection, processing and storage of whole human blood. (1 mark each)	3 marks	
