Exam Date & Time: 15-Jun-2022 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

Pharmaceutical Biotechnology [PBT-BP605T]

Marks: 75 **Duration: 180 mins.**

I Multiple Choice Questions (MCQs)

Answer all the questions. Section Duration: 30 mins

1) Major limitation in immobilization of enzyme by support binding method is (1)

1)	Leaching		2)	Inactivation		3)	Diffusional limitation		4)	Poor stability	

2) The word 'Biotechnology' was coined by (1)

1)	Louis Pastuer		2)	Eduard Buchner		3)	James Sumner		4)	Karl Ereky	

3) Fermentation is different from putrefaction as it involves mainly anaerobic decomposition of (1)

1)	fats		2)	proteins		3)	lipids		4)	sugars	

4) Compared to β- amylases for stabilization, bacterial α - amylases need the following ion for activation and stabilization: (1)

1)	magnesium		2)	calcium		3)	sodium		4)	potassium	

5) TETS means (1)

1)	transcutaneous energy transfer system		2)	transcutaneous electron transfer system		3)	transfer energy telemetry system		4)	telemetry electron transfer system	

6) Nucleus 6-APA can be obtained using (1)

1)	Penicillinase		2)	Amydase		3)	Acylase		4)	Catalase	

7) Blocking step in Western blot is carried out using: (1)

1)	SDS		2)	BSA		3)	PVDF		4)	Nitocellulose	

8) Prokaryotes differ from Eukaryotes in having ribosomes of (1)

1)	50 S		2)	60 S		3)	70 S		4)	80 S	

9) Phenotypic variations are not (1)

1)	influenced by environment		2)	limited in range by genotype		3)	temporary		4)	heritable	

10) Disease Sickle Cell anemia resulting from missense mutation has a change in sixth aminoacid of normal hemoglobin from (1)

1)	glutamic		2)	valine to		3)	glutamic		4)	tyrosine to	

	acid to cysteine			cysteine			acid to valine			alanine	

11) An example of microbial conversion involving isomerization reaction is

												(1)
1)	Tartaric acid from glucose		2)	fructose from glucose		3)	ephedrine from acetaldehyde		4)	xanthine from isoguanine		

12) Dextran for medicinal use is produced by heating dextran under pressure at

												(1)
1)	160° C		2)	90° C		3)	100°C		4)	120°C		

13) β-lactam ring is synthesized from the amino acids

												(1)
1)	alanine and tyrosine		2)	tyrosine and valine		3)	valine and cysteine		4)	alanine and cysteine		

14) Missense mutation is when altered gene triplet produces a codon in mRNA which

												(1)
1)	specifies an amino acid different from one present in the normal protein		2)	specifies chain terminating amino acid sequence only		3)	which specifies the same amino acid		4)	doesn't specify any amino acid		

15) Polymerase Chain Reaction was developed by

												(1)
1)	Kohler and Milstein		2)	Watson and Crick		3)	Calmette and Guerin		4)	Kary Mullis		

16) Type IV Hypersensitivity reaction is also called as

												(1)
1)	immediate hypersensitivity		2)	delayed hypersensitivity		3)	cytotoxic hypersensitivity		4)	immune complex hypersensitivity		

17) Naturally acquired active immunity would be most likely acquired through which of the following processes?

												(1)
1)	Vaccination		2)	Natural birth		3)	Infection with disease causing organism followed by recovery		4)	Regular exercise and healthy diet		

18) Which of the following immune cells/molecules are most effective at destroying intracellular pathogens?

												(1)
1)	Helper T cells		2)	B Cells		3)	Immunoglobulins		4)	Cytotoxic T cells		

19) Which of the following statement is incorrect regarding HAT medium

												(1)
1)	HAT medium is a selective medium		2)	Aminopterin used in HAT medium blocks de novo pathway of		3)	Slavage pathway requires aminopterin and thymidine		4)	Hypoxanthine is converted to guanine by HGPRT enzyme		

				nucleotide synthesis								

20) The most abdunt produced type of immunoglobulin in our body is (1)

1) IgA	2) IgM	3) IgE	4) IgG

II Long Answers

Answer all the questions.

1) Discuss the production of recombinant human insulin by rDNA technology. (10)

2) Explain the production and recovery of Penicillin (10)

III Short Answers

Answer all the questions.

1) Describe the types and features of restriction enzymes. (5)

2) Explain the types of cells that are involved in giving us 'cell mediated immune response'. (5)

3) Explain the production of 'tetanus toxoid'. (5)

4) Define the term 'immobilization of an enzyme'. Explain the process for entrapment of an enzyme. (5)

5) Write a note on microbial transformation of steroids. (5)

6) Describe the Southern blotting technique. (5)

7) Explain the characteristics of an ideal plasma substitute. (5)

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