



BRAINWARE UNIVERSITY

Term End Examination 2022 Programme – B.Sc.(BT)-Hons-2018/B.Sc.(BT)-Hons-2020 Course Name – Bioprocess Technology Course Code - BBT501/BBTC501 (Semester V)

Full Marks: 60

Time: 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A (Multiple Choice Type Question) 1 x 15=15 Choose the correct alternative from the following : (i) Identify the phase when the cellular growth rate increases a) Lag phase b) Log phase c) Stationary phase d) Deceleration phase (ii) Recognize the Batch culture model, that happens as _____ system. a) Open b) Closed c) Isolated d) semi-closed (iii) Select which one is not a parameter for making a culture media a) It should be able to produce the maximum b) It should be able to produce the maximum yield of product concentration of product d) It should permit the maximum rate of c) It should be easily sterilized. product formation, no matter how costly it (iv) Select the one that is not a Carbon source a) Blackstrap molasses b) Corn molasses c) Beet molasses d) Yeast extract (v) Select the organism who can not produce secondary metabolites a) Filamentous fungi b) Filamentous bacteria c) Sporing bacteria d) Enterobacteria (vi) Select the upstream process b) Product purification a) Product recovery c) Media formulation d) Cell lysis (vii) Relate the fundamental of Industrial Microbiology with____ a) To provide optimum growth conditions b) To provide aseptic conditions c) To produce a pure product d) To create a pure form of media (viii) Employ the operational condition of a biochemical plant_____ a) Metallic catalyst b) Chemical catalyst

d) Non-pathologic state of the organism

c) Elevated temperature

(IX)	Choose the correct statement about enzyme_			
	a) An Enzyme is a protein and is used as a catalyst to accelerate the reaction.	b) Life would not exist without the proof enzymes.	esence	
	c) Enzymes participate in cellular metabolic processes.	d) All of these		
(x)	Connect Lock and key hypothesis mechanism with			
	a) Digestion of fat in the body.	b) For enzyme specificity		
/v:\	c) For the formation of vacuole	d) Explosives		
(XI)	Relate from the following, medium used for cu			
(xii)	a) Be sterilized b) Be cheap and readily available c) Contain desired products d) Allow high yield of undesired products Select the impeller diameter in CSTR			
(xiii	 a) is usually 1/2 of the vessel diameter. b) usually 1/3 of the vessel diameter. c) is usually 1/3 of the vessel diameter. d) equal to the vessel diameter (xiii) Which sparger are considered as single open or partially-closed pipe that provide air bubble stream? 			
	a) Perforated sparger	b) Orifice sparger		
/ 	c) Nozzle sparger	d) Porous sparger		
(XIV) Justify the function of draft tube	h) Increase the velocity		
(xv)	a) Decrease the pressure c) Maximize kinetic energy Write the full form of PBR	b) Increase the velocityd) Minimize kinetic energy		
(/(*)	a) Photobioreactor	b) Photobioreaction		
	c) Phyicalbioreactor	d) Packedbioreactor		
Group-B				
	(Short Answer Ty	-	3 x 5=15	
2. Explain the enrichment culture technique. (3)				
3. Explain the terms chemostat and turbidostat			(3)	
	4. What is enzyme immobilization and its purpose			
			(3)	
OR Compare between submerged and solid-state fermentation. (3)				
			(3)	
Н	low do you produce recombinant products?		(3)	
Group-C				
	(Long Answer Ty	•	5 x 6=30	
	7. Consider the classical Medium Optimization for explaining the methods (!			
9.	Illustrate the effect of Specific Variables for Oxygen Mass Transfer in Shake Flasks Prioritize the consequence of Specific Variables for Oxygen Mass Transfer in Bubble Column Bioreactors (5)			
	10. Explain the Primary screening methods and its application (5)			
	11. Define the Effects of Physicochemical Properties of the Medium in Oxygen Mass Transfer (5) OR			
	Define single cell protein and draw a flow diagram for the production of single cell (5) protein from carbohydrate			
	2. Describe the steps involved in oxygen transfer from air to cell during fermentation? OR			
	Fermentation process are commercially more popular compare to chemical process. (5) Enlist the advantages and disadvantages of each process in this context.			
