www.FirstRanker.com

www.FirstRanker.com

L						

Total No. of Pages : 02

Total No. of Questions : 18

FirstRanker.com

B.Tech. (BT) (2012 to 2017) (Sem.-7) BIOPROCESS TECHNOLOGY Subject Code : BTBT-701 M.Code : 71843

Time: 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

- 1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
- 2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt ANY FOUR questions.
- 3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt ANY TWO questions.

SECTION-A

Discuss briefly :

- 1. Write down two basic differences between bioprocessing and chemical processing.
- 2. What is mean by bioconversion process?
- 3. Highlight at least one advantage and one disadvantage of batch over continuous fermentation process.
- 4. Explain continuous cell line.
- 5. When filter sterilization is recommended?
- 6. Define Respiratory Quotient.
- 7. In recent days, what problems associated with the bakers yeast growth in molasses encourage the choice of starchy materials from cereal grains as growth medium?
- 8. What is the major difference between the primary metabolite and the secondary metabolite production in relation to the microbial growth phase?
- 9. Explain feedback inhibition.
- 10. What are major ways of strain development?



www.FirstRanker.com

SECTION-B

- 11. Thermal death of microorganisms in the liquid medium follows first order kinetics. If the initial cell concentration in the fermentation medium is 10^8 cells / ml and the final acceptable contamination level is 10^{-3} cells, for how long should 1.0 m³ medium be treated at temperature of 120 °C to achieve acceptable load? Consider the thermal deactivation rate constant at 120 °C is 0.23 / min.
- 12. What are the basic features of a fermenter? Draw a schematic to indicate them.
- 13. Comment on 'diffusion limitation in immobilized enzyme system'.
- 14. Briefly explain the 'Chelating Agent' and 'Growth Factor' in media design.
- 15. Discuss chromatography technique in downstream processing.

SECTION-C

- 16. Describe ethanol fermentation.
- 17. A strain of mold was grown in batch culture on glucose and the following data were obtained :

Time (h)	Cell concentration	Glucose			
	(g/1)	concentration (g/1)			
0	1.25	100			
9	2.45	97			
16	. 5.1	90.4			
23	10.5	76.9			
30	22	48.1			
34	33	20.6			
36	37.5	9.38			
40	41	0.63			

- a. Calculate the maximum net specific growth rate.
- b. Calculate the apparent growth yield.
- c. What maximum cell concentration could one expect if 150 g of glucose were used with the same size inoculum?
- 18. Discuss the feedback inhibition problem relating the L-Lysine production. Describe L-Lysine production including the production process, different media sources and influencing factors and downstream processing.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

2 M -	7	1	8	4	3	
---------	---	---	---	---	---	--

(S2)-365