VCD/ 23/10/23 SYBT SEM III SUB: BIOPROCESS TECHNOLOGY 75 MARKS 2HRS 30 MIN

NOTE

1. Attempt **all** questions.
2. **All questions** carry **equal** marks.
3. Draw **neat labeled diagrams** wherever necessary.
4. For **Q 2, Q 3 and Q 4** attempt A and B **OR** C and D.

Q 1 **Do as directed (Any fifteen)** **15**

1. State one type of tower fermenter.
2. Give one example of an inducer used in fermentation media.
3. What is 'Blackstrap molasses'.
4. What are 'Top fermenter yeasts'?
5. Give one application of deep jet fermenter.
6. What is 'Orleans process'?
7. Name any one antifoam agent.
8. State any one application of the enzyme proteases.
9. Thermistors are _____.
10. What is the principle of a 'Turbidostat'?
11. Name the organism used for producing streptomycin commercially.
12. Production fermenters are used for inoculum development.State whether the statement is true or false.
13. What will happen if you add a loopful of culture to a lab scale fermenter?
14. Give one example of naturally occuring penicillin.
15. Name any one spore bearing bacterium.
16. In the case of inoculum development for yeast processes why is the wort aerated before inoculation?
17. What is 'Fast metabolism'?
18. Define 'Precursors' in fermentation media.
19. How is batch sterilization of liquid waste done?
20. Give the name of any one process for the microbial conversion of ethanolic solutions to acetic acid

Q. 2 A Discuss air lift fermenter in detail. **08**

Q. 2 B Give an account on filter sterilization of air and exhaust air. **07**

OR

Q. 2 C what is continuous sterilisation? Discuss its major advantages and disadvantages. **08**

Q. 2 D Discuss the factors influencing the choice of nitrogen source and give examples of commonly used nitrogen source. **07**

Q. 3 A Discuss inoculum development for bacterial processes. **08**

Q. 3 B Diagrammatically explain the steps involved in inoculum development. **07**

OR

Q. 3 C Give an account of scale up of fermentation processes. **08**

Q. 3 D How would you measure and control temperature as a process parameter. **07**

Q. 4 A	Discuss the industrial surface- culture process and recovery of citric acid in detail.	08
Q. 4 B	Give a brief account on significance and application of batch and continuous type of fermentations.	07
	OR	
Q. 4 C	Discuss the submerged culture process for the production of enzyme amylase.	08
Q. 4 D	Give an account of fermentative production of streptomycin using a flow-sheet.	07

Q 5	Write Short notes on **any three** of the following	15
a.	Growth factors in fermentation media.	
b.	Acetic acid fermentation	
c.	Criteria for the transfer of inoculum.	
d.	Seed fermenters	
e.	Thermistors	