

--	--	--	--	--	--	--	--	--	--

Seventh Semester B.E. Degree Examination, Dec.2018/Jan.2019

## Fermentation Technology

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

### Module-1

- 1 a. Write a note on the modes of fermentation. (08 Marks)  
b. Explain batch growth kinetics of micro organisms. (08 Marks)

OR

- 2 a. Illustrate the strategies used to optimize the secondary metabolite production. (10 Marks)  
b. Write a short note on microbiology of brewing with relevant examples. (06 Marks)

### Module-2

- 3 a. Write a note on hairy root culture and bio transformation. (08 Marks)  
b. What are the factors affecting secondary metabolite production. (08 Marks)

OR

- 4 a. How are monoclonal bodies produced using hybridoma technology? (08 Marks)  
b. Write short notes on : i) elicitation ii) immobilization of cultures. (08 Marks)

### Module-3

- 5 a. Illustrate the cell disruption method used for intracellular products. (12 Marks)  
b. Write a note on economics of downstream processing in biotechnology. (04 Marks)

OR

- 6 a. Write a note on flocculation and sedimentation. (08 Marks)  
b. Explain any two types of electrophoresis techniques in detail. (08 Marks)

### Module-4

- 7 a. Describe the aqueous two phase extraction technique in detail. (08 Marks)  
b. Explain reverse osmosis technique in detail. (08 Marks)

OR

- 8 a. Write short note on : i) Precipitation method with salt  
ii) Precipitation using organic solvents. (08 Marks)  
b. Elucidate on solute polarization ; cake formation in membrane; and ultra filtration. (08 Marks)

### Module-5

- 9 a. Write a note on GLC and its application. (08 Marks)  
b. How are the products recovered using crystallization? Explain in detail. (08 Marks)

OR

- 10 a. Write a detailed note on ion exchange chromatography. (08 Marks)  
b. Describe the HPLC technique and its application. (08 Marks)

\* \* \* \* \*