

**T. Y. B. Sc. (Biotechnology) SEM – VI (CBCS - 2015 COURSE) :
WINTER - 2018**

Subject: Bioprocess Technology & Quality Control

Day: Tuesday
Date: 23/10/2018

W-2018-1187

Time: 10.00 AM TO 01.00 PM
Max. Marks: 60

N.B.:

- 1) Q1 and Q5 are compulsory.
- 2) Answer ANY TWO questions from Q 2, 3, 4 in Section I.
- 3) Answer ANY TWO questions from Q 6, 7, 8 in Section II.
- 4) Answers to Both the sections to be written in SEPARATE answer books.
- 5) Draw a labeled diagram WHEREVER necessary.

SECTION - 01

Q.1) Answer the following: (ANY FIVE) (2 Marks X 5 = 10)

- a) What is crowded plate technique?
- b) What are the different oil and fats used as carbon source?
- c) How strain improvement is carried by selection of mutants with altered cell membrane permeability?
- d) What are the criteria for selection of industrially important microorganisms?
- e) What is upstream processing? Mention the stages involved in it.
- f) What is surface and submerged culture method?

Q.2) Answer the following: (5 Marks X 2 = 10)

- a) How microbial growth is related to metabolite production?
- b) Explain the process of primary screening of microorganisms.

Q.3) Explain the following: (5 Marks X 2 = 10)

- a) Carbohydrates as carbon sources
- b) Draw a well labeled diagram of typical fermenter. Mention the role of various parts.

Q.4) Write short notes on the following: (5 Marks X 2 = 10)

- a) Methods of culture preservation
- b) Temperature and pH measurement and control during fermentation

SECTION - 02

Q.5) Answer the following: (ANY FIVE) (2 Marks X 5 = 10)

- a) What is downstream processing? Name the stages involved in it.
- b) What is the role of sparger in fermenter?
- c) What do you mean by DQ?
- d) What is Countercurrent Extraction?
- e) Mention various stages in recovery of product.
- f) What is role of Affinity chromatography in product recovery?

Q.6) Answer the following: (5 Marks X 2 = 10)

- a) Explain the solvent recovery process by distillation used in purification.
- b) What is validation? Describe types of validation.

Q.7) Explain the following: (5 Marks X 2 = 10)

- a) Explain tower fermenter with diagram
- b) Discuss the continuous filtration for product recovery.

Q.8) Write short notes on the following: (5 Marks X 2 = 10)

- a) Role of Ion exchange and Gel exclusion Chromatography in recovery of product
- b) Air handling system in a Bioprocess industry.
