

**T. Y. B. Sc. (Biotechnology) SEM – VI (CBCS - 2015 COURSE) :
SUMMER - 2019**

SUBJECT: BIOPROCESS TECHNOLOGY & QUALITY CONTROL

Day: Wednesday
Date: 17/04/2019

S-2019-1389

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 **SAME** answer books.
- 5) Draw a labeled diagram WHEREVER necessary.

SECTION - I

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

- a) Mention various categories of commercially important fermentation product.
- b) Criteria for the selection of raw material used in fermentation media
- c) What are the criteria for selection of industrially important microorganisms?
- d) What are primary metabolites? Name the growth phase in which it is produced?
- e) What is the role of chelater in fermentation media?
- f) What is submerged culture method?

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

- a) How microbial growth is related to metabolite production?
- b) Explain strain improvement technique by mutation.

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

- a) Carbohydrates as carbon sources
- b) Explain various parts of typical fermenter. Draw a labeled diagram.

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

- a) Airlift fermenter
- b) Foam sensing and control

SECTION - II

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

- a) How the foam is formed during fermentation?
- b) What is the role of impeller in fermenter?
- c) What do mean by co-current and counter current extraction?
- d) How cell disruption is carried out by detergents?
- e) What are the applications of Affinity chromatography in product recovery?
- f) How temperature is controlled during fermentation?

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

- a) How aseptic conditions are achieved during fermentation process?
- b) Describe in detail process of handling of Raw material in a bioprocess industry.

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

- a) Temperature measurement and control
- b) Write SOP for Good documentation.

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

- a) DQ, IQ, OQ, PQ.
- b) Air handling system in a Bioprocess industry.
