



**DP-003-2016011**

Seat No. \_\_\_\_\_

**B. Sc. (Sem. VI) (CBCS) Examination**

**March - 2022**

**Microbiology : MB-601**

***(Fermentation Technology) (2019)***

***(New Course)***

**Faculty Code : 003**

**Subject Code : 2016011**

Time : **2.30** Hours]

[Total Marks : **70**

- Instructions :** (1) All questions are compulsory.  
(2) Right side indicates mark of question.  
(3) Draw Diagram if necessary.

- 1** (A) Answer the following questions. **4**  
(1) Define crowded plate technique  
(2) Define Variation  
(3) Define Bioreactor  
(4) Define pure culture  
(B) Answer in brief. (Any one out of two) **2**  
(a) Write merits of Wilkins method.  
(b) What are industrially improve stains ?  
(C) Answer in detail. (Any one out of two) **3**  
(a) Name the scientists associated with fermentation process.  
(b) Write about concept of Industrial Microbiology.  
(D) Write note on. (Any one out of two) **5**  
(a) "Recombinant DNA Technology"  
(b) Parameters of Secondary Screening

- 2** (A) Answer the following questions. **4**
- (1) Define inhibitots.
  - (2) Define Natural protected media.
  - (3) Define Growth Regulators.
  - (4) Name natural Antifoam Agents
- (B) Answer in brief. (Any one out of two) **2**
- (a) Name precursors used in bioprocess.
  - (b) What is used of Black strap Molasses.
- (C) Answer in detail. (Any one out of two) **3**
- (a) What are the major differences in inoculum and production media.
  - (b) Name various types of carbon sources used in fermentation media.
- (D) Write note on. (Any one out of two) **5**
- (a) Explain media optimization with example.
  - (b) Explain natural nitrogen raw materials used in media.
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- 3** (A) Answer the following questions. **4**
- (1) Define Containment
  - (2) Define Agitation
  - (3) Define Impeller
  - (4) Define Del factor
- (B) Answer in brief. (Any one out of two) **2**
- (a) How contamination can be eliminated from bioprocess.
  - (b) Name the methods for Air Sterilization.
- (C) Answer in detail. (Any one out of two) **3**
- (a) Write the disadvantages of continuous fermentation process.
  - (b) Methods of Media sterilization.

- (D) Write note on. (Any one out of two) 5
- (a) List out types of Bioreactor, explaining one in detail.
  - (b) Why Aseptic operation is important and explain containment categorization.
- 4 (A) Answer the following questions. 4
- (1) Name any physico-chemical assays.
  - (2) Name heat labile component present in fermentation media.
  - (3) Define secondary metabolites.
  - (4) Define Bioassay.
- (B) Answer in brief. (Any one out of two) 2
- (a) What is non mechanical methods of cell disruption.
  - (b) Name few mechanical methods of cell breaking.
- (C) Answer in detail. (Any one out of two) 3
- (a) How centrifugation and filtration are important in Bioprocess.
  - (b) List the factors affecting product recovery in fermentation process.
- (D) Write note on. (Any one out of two) 5
- (a) Liquid - liquid extraction method.
  - (b) Super critical fluid extraction method.
- 5 (A) Answer the following questions. 4
- (1) Define Antibiotic.
  - (2) Define Vitamins.
  - (3) Define Immobilization.
  - (4) Define Agar cup diffusion assay.
- (B) Answer in brief. (Any one out of two) 2
- (a) Give few properties of Lysine.
  - (b) Give few properties of Enzymes.

(C) Answer in detail. (Any one out of two) **3**

- (a) How recovery of Alcohol is carried out ?
- (b) List out few methods of cell immobilization with example.

(D) Write note on. (Any one out of two) **5**

- (a) Production of antibiotic - Penicillin.
  - (b) Production of vitamin - Riboflavin.
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