



**AH-633**

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

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

**March - 2019**

**Microbiology : MB-602**

**Industrial Microbiology**

**(Core Compulsory)**

Time : 3 Hours ]

[ Total Marks : 70

1 (a) Answer any two questions from following : 12

- (1) Criteria for the isolation of industrially important microorganism.
- (2) Strain improvement by DNA recombinant technology.
- (3) Give detail note on Range of fermentation products.

(b) Answer any two questions from following : 6

- (1) Enlist some international microbial culture collection centers.
- (2) Define : fermentation.
- (3) Define : upstream and down stream process in fermentation.

2 (a) Answer any two questions from following : 12

- (1) Antifoaming agent.
- (2) Sterilization of air supply.
- (3) Media for industrial fermentation.

- (b) Answer any two questions from following : 6
- (1) Adverse effects of heat sterilization on media ingredients.
  - (2) Enlist methods of cell disruption.
  - (3) Draw a fermentor.
- 3 (a) Answer any two questions from following : 12
- (1) Use of different chromatography for product purification.
  - (2) Types of filters used for removal of solids.
  - (3) Chemical methods of cell disruption.
- (b) Answer any two questions from following : 6
- (1) Define : bioassay
  - (2) Draw outline of down stream process.
  - (3) How to remove solid in down stream process.
- 4 Answer any two questions from following : 16
- (1) Give the name of organisms use in penicillin production and explain upstream process of penicillin fermentation in detail.
  - (2) Fermentative productions of organic acids - citric acid.
  - (3) Give detail note on fermentation media used for ethanol fermentation and give detail note on down stream process.
  - (4) Fermentative productions of enzyme amylase.
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