Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 11

M.Sc. Biotechnology (2018 Batch) (Sem.-2)

BIOPROCESS ENGINEERING

Subject Code : MBT-205

M.Code : 76249

Time : 3 Hrs. Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains SEVEN questions carrying SIX marks each and students have to attempt any FIVE questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. Describe briefly :

(a) Unit operations of a bioprocess

(b) Fed batch system

(c) Solid state fermentation

(d) Fluidized bed reactor

(e) Fermentation economics

(f) Sedimentation velocity

(g) Crystallization

(h) Bacteriocins

(i) Fermented foods

(j) Reverse osmosis

SECTION-B

2. Describe briefly screening and maintenance of industrially important microorganisms.

3. Describe briefly growth kinetics of batch system.

4. What is scale-up? Describe briefly scale-up of bioprocesses.

5. What is a fermenter? Describe various modes of operation of a fermenter.

6. What is cell disruption? Describe various mechanical methods of cell disruption.

7. Describe briefly production of microbial colours and microbial flavours.

8. Describe the utilization of whey for the production of various value added products.

SECTION-C

9. Describe the production of bacteriocins from lactic acid bacteria. Also highlight their applications in food perservation.

10. What is liquid-liquid extraction? Describe various chromatographic techniques used for the purification of bioproducts. Also highlight merits and demerits of each method.

11. What is strain improvement? Describe briefly strain improvement for increased yield and other desirable characteristics.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.