

Roll No.

Total Pages : 3

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Jan. 2022

M.Sc. (Microbiology) IIIrd SEMESTER

Industrial Microbiology (MMT-301)

Time : 90 Minutes]

[Max. Marks : 25

Instructions :

1. *It is compulsory to answer all the questions (1 mark each) of Part-A in short.*
2. *Answer any three questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART - A

1. State True or False :

- (a) The screening is isolation and detection of microorganisms of interest. (1)
- (b) The cryoprotective agents are used to prevent cell damage. (1)
- (c) Crude media is an undefined media. (1)
- (d) In fixed-volume fed-batch culture, volume changes with fermentation time due to the substrate feed. (1)

- (e) The downstream processing includes purification and recovery of products obtained from fermenters. (1)
- (f) The cultures grown on agar slopes may be stored in the refrigerator or freezer at 5°C to -20°C. (1)
- (g) The fermentation media should not allow high yield of undesired products. (1)
- (h) The antifoaming agents should not cause any problems in the extraction and purification of the product. (1)
- (i) All microorganisms require minerals for growth and metabolism. (1)
- (j) Grapes are used in the production of beer. (1)

PART - B

- 2. (a) Write a short note on strain improvement of microorganisms. (3)
- (b) Give a brief account on primary and secondary metabolites. (2)
- 3. (a) Give a brief account on solid state fermentation along with its advantages and disadvantages. (2)
- (b) What is downstream processing? Discuss giving suitable example. (3)
- 4. Give a brief account on steps involved in wine production at industrial scale. (5)

- 5. (a) Write a short note on Insulin production at industrial scale using chain A and chain B method. (3)
 - (b) Discuss the production process of citric acid. (2)
 - 6. (a) Write a short note on recombinant vaccines. (2)
 - (b) Give a brief account on fermentation process of penicillin production. (3)
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