



Seat No. _____

H-003-2016011

B. Sc. (Sem. VI) (CBCS) (W.E.F. 2019) Examination

April - 2023

MB-601 : Fermentation Technology

Faculty Code : 003

Subject Code : 2016011

Time : $2\frac{1}{2}$ Hours / Total Marks : 70

- 1 (a) Answer the following : 4
- (1) Define : Fermentation.
 - (2) What are secondary metabolites ? Give its examples.
 - (3) What is Pure Culture ?
 - (4) Define Protoplast fusion.
- (b) Answer in brief : (any **one** out of two) 2
- (1) Write any two chronological development of fermentation process.
 - (2) Enlist any four-culture collection centre.
- (c) Answer in detail : (any **one** out of two) 3
- (1) Describe Primary and secondary screening method.
 - (2) Discus in detail economic aspects of fermentation process.
- (d) Write a note on : (any **one** out of two) 5
- (1) Describe r-DNA technology.
 - (2) Write a note on range of fermentation process.

- 2 (a) Answer the following : 4
- (1) What is the aim of inoculum medium ?
 - (2) Name Natural antifoam agent.
 - (3) What is chelating agents ? Give its example.
 - (4) Give the examples of crude carbon sources.
- (b) Answer in brief : (any **one** out of two) 2
- (1) Write an ideal parameter of fermentation media.
 - (2) Describe role of precursor in fermentation process.
- (c) Answer in detail : (any **one** out of two) 3
- (1) Write a difference between crude/natural medium and synthetic/artificial medium.
 - (2) Give example of crude nitrogen sources as Raw material.
- (d) Write a note on : (any **one** out of two) 5
- (1) Write a detailed note on raw material used in fermentation medium.
 - (2) Describe Media optimization with suitable example.
- 3 (a) Answer the following : 4
- (1) Write any two characteristics of fermenter.
 - (2) What is function of head space in fermenter ?
 - (3) Write a role of baffles.
 - (4) Define Del factor.
- (b) Answer in brief : (any **one** out of two) 2
- (1) Draw a well labelled diagram of fermenter.
 - (2) Give function of impeller.
- (c) Answer in detail : (any **one** out of two) 3
- (1) Describe sparger and its types.
 - (2) Describe a method used for medium sterilization.
- (d) Write a note on : (any **one** out of two) 5
- (1) Discuss various types of bioreactors.
 - (2) Write a detailed note on batch and continuous fermentation process.

- 4 (a) Answer the following : 4
- (1) Define downstream process.
 - (2) What is supercritical fluid extraction ?
 - (3) What is broth conditioning ?
 - (4) Define Bioassay.
- (b) Answer in brief : (any **one** out of two) 2
- (1) Enlist types of centrifuges.
 - (2) Give the examples of non-mechanical method of cell lysis.
- (c) Answer in detail : (any **one** out of two) 3
- (1) Discuss in detail biological assay of fermentation product.
 - (2) Write on supercritical fluid extraction method.
- (d) Write a note on : (any **one** out of two) 5
- (1) Discuss in detail cell disruption methods of fermentation products.
 - (2) Describe liquid-liquid extraction.
- 5 (a) Answer the following : 4
- (1) Who discovered penicillin antibiotic ?
 - (2) Which fungi produced citric acid ?
 - (3) Write application of amylase enzyme.
 - (4) What is encapsulation ?
- (b) Answer in brief : (any **one** out of two) 2
- (1) Enlist types of amylases and its mode of action.
 - (2) Which bacteria, fungi and yeast used in alcohol fermentation ?
- (c) Answer in detail : (any **one** out of two) 3
- (1) Production of amino acid: Lysin.
 - (2) Production of vitamin : Riboflavin.
- (d) Write a note on : (any **one** out of two) 5
- (1) Describe a detailed note on penicillin fermentation.
 - (2) Describe methods of immobilization of enzymes/cells.