



BCG-003-001526

Seat No. _____

B. Sc. (Sem. V) (CBCS) Examination

August - 2021

Microbiology : MB - 502

(Bio-Process Technology) (Old Course)

Faculty Code : 003

Subject Code : 001526

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- Instructions :** (1) All questions are compulsory.
(2) Right side figure indicate mark of question.
(3) Draw diagram where it is necessary.

- 1 (a) (1) Define Bioreactor. 4
(2) Define Mutation.
(3) Meaning of fermentation.
(4) What is protoplast ?
(b) What are industrially important microbes ? 2
(c) Write the application of Lipase. 3
(d) Which are the ranges of fermentation processes ? 5

OR

- 1 (a) (1) What is isolation process ? 4
(2) Define GLP.
(3) Define Bacteria.
(4) Define Buffer solution.
(b) Enlist microbial metabolites. 2
(c) Parameters of primary screening. 3
(d) Note on recombinant DNA technology. 5

- 2 (a) (1) Define Indicators. 4
 (2) What are inducers ?
 (3) Role of Minerals in Media.
 (4) Define Natural Media.
 (b) Why growth regulators are used in Media ? 2
 (c) What is medium formulations ? 3
 (d) Raw materials used in fermentation medium - Note. 5

OR

- 2 (a) (1) Define antifoam agents. 4
 (2) Define refinery black strap molasses.
 (3) Define inoculum medium.
 (4) What is sporulation medium ?
 (b) Name the crude sources of nitrogen. 2
 (c) Why precursors are used in bioprocess ? 3
 (d) Brief note on "Media optimization". 5

- 3 (a) (1) Define pasteurization. 4
 (2) Define sterilization.
 (3) What is batch fermentation ?
 (4) Define baffles.
 (b) Why air sterilization is necessary in bioprocess ? 2
 (c) Note on aseptic operation in fermentation. 3
 (d) Write on basic functions of bioreactor. 5

OR

- 3 (a) (1) Define agitation. 4
 (2) Define Impeller.
 (3) What is sparger ?
 (4) Air Lift Fermenter.
 (b) What is major disadvantages of continuous 2
 fermentation process ?
 (c) List out the types of bioreactors. 3
 (d) Sterilization methods for air in fermentation process. 5

- 4 (a) (1) Define dielectric constant. 4
 (2) Define chromatography.
 (3) What is intracellular fermentation product ?
 (4) Define molasses.
- (b) Application of solid shear technique. 2
 (c) Write on supercritical fluid extraction. 3
 (d) Which are methods of cell separation ? 5

OR

- 4 (a) (1) Define bioindicators. 4
 (2) Name microbe producing anylase.
 (3) Which fungi produce citric acid ?
 (4) Define bioassay.
- (b) How sedimentation and filtration useful in bioprocess ? 2
 (c) List the various methods of diffusion assay. 3
 (d) Discuss mechanical methods for cell disruption. 5

- 5 (a) (1) Define immobilization of cell. 4
 (2) Spectrophotometric assay.
 (3) What is micro encapsulation method ?
 (4) What is covalent binding technique ?
- (b) What is two phase aqueous extraction system ? 2
 (c) What is down stream process ? 3
 (d) Production of ethylalcohol by fermentation process. 5

OR

- 5 (a) (1) Define Oxford cylinder diffusion technique. 4
 (2) Name any antifoam agent.
 (3) Name any physicochemical technique.
 (4) Name antibiotic products.
- (b) What is liquid-liquid extraction system ? 2
 (c) Give few application of immobilized enzymes. 3
 (d) Production of organic acid citric acid by fermentation process. 5