

PAQ-003-001526

Seat No. _____

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

October / November - 2018

Microbiology : Paper - 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 figures indicate mark of the question.
 - (3) Draw the figure wherever necessary.
 - (4) Write answers of all the questions in main answer sheet.

1 Answer briefly : 20

- (1) Define fermentation.
- (2) What is primary screening?
- (3) What is protoplast fusion?
- (4) _____ is an interdisciplinary field that develops methods and software tools for understanding biological data.
- (5) What do you mean by buffer?
- (6) What do you mean by molasses?
- (7) Give two examples of antifoam agents.
- (8) Phenyl acetic acid is the most widely used precursor in _____ production.
- (9) Define sterilization.
- (10) What is batch fermentation?
- (11) Define baffles.

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[Contd...

- (12) _____ is a device which allow shaking or stirring of fermentation medium.
- (13) What do you mean by downstream processing?
- (14) Define centripetal force
- (15) Enlist various types of centrifuge
- (16) _____ shock caused by a sudden change in salt concentration will cause disruption of a number of cell types.
- (17) Who discovered Penicillin?
- (18) Define immobilization.
- (19) Give two industrial applications of microbial protease.
- (20) Citrus fruits contain _____ acid.

2 (a) Answer the following : (any 3)

6

- (1) Define secondary screening with example.
- (2) Define crude media.
- (3) Enlist methods used for primary screening of antibiotic producing bacteria.
- (4) Define partition coefficient.
- (5) Name any two organisms producing Citric acid.
- (6) Explain Solvent recovery.

(b) Answer the following : (any 3)

9

- (1) Explain range of fermentation process.
- (2) Discuss criteria for selecting media for fermentation industry.
- (3) Write a note on agitators used in fermentation industry.
- (4) Discuss filtration technique.
- (5) Give six uses of Amylases.
- (6) Discuss historical development of industrial microbiology.

(c) Answer the following : (any 2) 10

- (1) Write a note on Improvement of Industrially important microbes by protoplast fusion.
- (2) Discuss raw materials used in fermentation industry.
- (3) Discuss various points to be considered in designing and construction of a fermenter.
- (4) Give details of Physical and chemical assay.
- (5) Discuss in detail Fermentative production of Penicillin.

3 (a) Answer the following : (any 3) 6

- (1) Define Protoplast.
- (2) Give idea about role of precursor molecules in fermentation industry.
- (3) What do you mean by continuous fermentation?
- (4) Explain centrifugation.
- (5) Characteristics of strains used for alcohol fermentation.
- (6) Give the biochemical reaction for ethanol production.

(b) Answer the following : (any 3) 9

- (1) Discuss component parts of fermentation process.
- (2) Give idea about role of inducers and inhibitors in fermentation industry.
- (3) Discuss Air lift fermenter.
- (4) Explain Tangential filtration process.
- (5) Discuss extraction of riboflavin.
- (6) Write a note on media optimization.

(c) Answer the following : (any 2)

10

- (1) Discuss in detail economic aspects of Fermentation Industry.
- (2) Write a note on media formulation.
- (3) Discuss in detail batch and continuous fermentation process and their comparative advantages and disadvantages.
- (4) Discuss in detail liquid-liquid extraction.
- (5) Write a detailed note on immobilization of cells and enzymes.