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.

(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.
