



RN-003-001517

Seat No. _____

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

February - 2019

**BT - 501 : Bioprocess and Biochemical
Engineering**

Faculty Code : 003

Subject Code : 001517

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

[Total Marks : 70

- 1 (A) Answer the Question : 4
- (1) Give two examples of primary metabolites
 - (2) Preservation of fungi requires soil, calcium carbonate and _____
 - (3) 5-bromouracil is a _____ of thymine
 - (4) Plasmid is used as a _____ in rDNA technology
- (B) Answer the Question - Any **One** out of Two : 2
- (1) Explain the process of physical mutagenesis.
 - (2) Process of lyophilization technique.
- (C) Answer the Question - Any **One** out of Two : 3
- (1) Characteristics of secondary screening technique.
 - (2) Explain replica plate technique used for the isolation of mutant
- (D) Answer the Question - Any **One** out of Two : 5
- (1) Explain the mechanism of strain improvement by rDNA
 - (2) Explain the process of solid and liquid enrichment technique.

- 2 (A) Answer the Question : 4
- (1) _____ is used to control the temperature during fermentation process.
 - (2) Give two names of non-stirred fermenters.
 - (3) Chemostat is a type of _____ culture technique.
 - (4) In pseudo plastic fluid behavior, the viscosity of medium _____.
- (B) Answer the Question - Any **One** out of Two : 2
- (1) Types of impellor
 - (2) Draw and label parts of ideal fermenter.
- (C) Answer the Question - Any **One** out of Two : 3
- (1) Explain the process of oxygen transfer from gaseous phase to dissolved oxygen.
 - (2) Explain the process of inoculum preparation with fungi.
- (D) Answer the Question - Any **One** out of Two : 5
- (1) Explain the kinetics of microorganism in batch culture technique
 - (2) Explain the methods used for determination of K_{La} value.
- 3 (A) Answer the Question : 4
- (1) Heat, chemical, filtration and _____ are used as sterilizing agents.
 - (2) Rice straw is a source of _____ in media.
 - (3) DDC stands for _____
 - (4) Absolute filter is also called as _____ pores.
- (B) Answer the Question - Any **One** out of Two : 2
- (1) What is sterilization cycle ?
 - (2) Difference between crude and synthetic media

- (C) Answer the Question - Any **One** out of Two : **3**
- (1) What should be the properties of antifoam agent
 - (2) Explain the importance of automation in Fermentation industry
- (D) Answer the Question - Any **One** out of Two : **5**
- (1) Explain different methods used for the optimization of media
 - (2) Explain the formulation of media
- 4 (A) Answer the Question : **4**
- (1) Solvent-solvent extraction purify the compound on the basis of its _____
 - (2) Rotatory vacuum is used for the filtration of _____
 - (3) Cell disintegrator is used for _____
 - (4) Ultrasonicator disrupt the cell because of its _____
- (B) Answer the Question - Any **One** out of Two : **2**
- (1) What is broth conditioning?
 - (2) What is liquid-liquid extraction?
- (C) Answer the Question - Any **One** out of Two : **3**
- (1) What are the types of centrifugation
 - (2) Types of chromatography used for purification of product.
- (D) Answer the Question - Any **One** out of Two : **5**
- (1) Give an overview of downstream process and briefly explain it.
 - (2) Define bioassay. What are the types of bioassay ?

- 5 (A) Answer the Question : 4
- (1) Large amount of _____ is formed as byproduct during cheese production
 - (2) Sauerkraut is the fermented form of _____
 - (3) Corn steep liquor is used as a precursor for the production of _____
 - (4) _____ culture is used for the production of alcohol.
- (B) Answer the Question - Any **One** out of Two : 2
- (1) What is sub merged fermentation?
 - (2) What are the byproducts of alcohol fermentation and write its uses.
- (C) Answer the Question - Any **One** out of Two : 3
- (1) What is solid state fermentation ?
 - (2) Use of gluconic acid
- (D) Answer the Question - Any **One** out of Two : 5
- (1) Explain typical fermentation of citric acid
 - (2) Explain the types of immobilization with its advantage and disadvantages
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