JV-003-1015033 Seat No. _____

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

October - 2019

BT - 501 : Bioprocess & Biochemical Engineering

Faculty Code : 003

Subject Code : 1015033

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

1 Answer the following questions in one word : **20**

(1) Oil is used as an _____ agent in media.

(2) Primary metabolites are produced in _____ phase of growth.

(3) 5-Bromouracil is a base analogue of _____.

(4) Replica plating technique is used for the isolation of _____.

(5) Restriction endonuclease is used as _____ in molecular biology.

(6) Molasses is a by-product of _____ industry.

(7) Growth can be defined as increase in cell size, mass and _____.

(8) Air lift fermenter is an example _____ tank reactor.

(9) _____ is the phase of microbial growth where death rate is equal to growth rate.

(10) Chemostat is an example of _____ culture technique.

(11) Inoculum media aims to _____ the growth of bacteria.

(12) Distillers soluble is a source of _____ in media.

(13) Vitamin B_{12} is produced by _____ microorganism.

(14) Ultrasonicator is used for the _____ of cell.

(15) RSM stands for _____.

(16) Alcohol recovery from the fermented broth can be done by _____ technique.

(17) Glass can be used as a material for the immobilization of enzyme. True/False

(18) Purine replaced by pyrimidine, the process is called _____.

(19) Air sterilization is generally done by _____ technique.

(20) Ammonium sulphate is used for the _____ of protein.

2 (a) Write any **three** out of six : **6**

(1) Define strain.
(2) What is Monod equation.
(3) What is up stream processing ?
(4) Give example of Newtonian and Non-Newtonian fluid.
(5) What is starter culture ?
(6) Difference between crude and synthetic media.

(b) Write any **three** out of six : **9**

(1) Explain liquid enrichment culture technique.
(2) What is fed batch culture ?
(3) Recovery of alcohol from fermented broth.
(4) Enlist and explain raw material used as carbon source.
(5) What is placket Burmann theory ?
(6) Explain the inoculum preparation of Baker's yeast.

(c) Write any **two** out of five : **10**

(1) Enlist and draw different designs of fermenter.
(2) Explain the formulation of media.
(3) Explain the process of steam sterilization of media.
(4) Types and mechanism of immobilization method.
(5) Write the kinetics of continuous culture technique.

3 (a) Write any **three** out of six : **6**

(1) Define screening.
(2) Enlist supporting matrix used for immobilization.
(3) What is solid state fermentation.
(4) What is sterilization cycle.
(5) Define bioassay.
(6) What are the phases of growth curve.

(b) Write any **three** out of six : **9**

(1) Write short note on fermentation economics.
(2) Explain air filtration of media.
(3) Explain the recovery of penicillin from fermented broth.
(4) Types of sparger used in fermentation.
(5) What are the factors affecting the choice of immobilization method ?
(6) Recovery of gluconic acid.

(c) Write any **two** out of five : **10**

(1) Explain mechanical and non-mechanical method of cell disruption.
(2) Explain the mechanism of recombinant DNA technology.
(3) Explain computer application in fermented industry.
(4) Explain different types of preservation techniques.
(5) Methods used for determining the value of K_La.