Exam.Code:0437
Sub. Code: 3482

2021

M. Sc. (Biotechnology) Third Semester

MBIO-304: Bioprocess Engineering and Technology

Time allowed: 3 Hours Max. Marks: 80

NOTE: *Attempt five questions in all, including Question No. I which is compulsory and selecting one question from each Unit.*

x-x-x

I. Write answer in 25-30 worlds:-

a) GMO

b) Monod equation

c) Molasses

d) Applications of spray drying

e) Use of glycerol

f) Decimal reduction time

g) Activated sludge

h) Impellers (8x2)

UNIT – I

II. What do you understand by the isolation, preservation and maintenance of industrially important microbes? Discuss in detail. (16)

III. Write short notes on:-

a) Kinetics of medium sterilization

b) Media for industrial fermentation

c) Kinetics of microbial cell death (5+5+6)

UNIT – II

IV. Write short notes on following:-

a) Photobioreactors

b) Computer in bioprocess control

c) PID controllers (5+5+6)

P.T.O.

V. Write in brief on:-

a) Fluidized bed bioreactors

b) Sterilizable DO probes

c) Requirement of sensors

UNIT – III

VI. Write short notes on:-

a) Affinity chromatography for purification of macromolecules

b) Principle and types of centrifugation

c) Methods for microbial cell disruption (5+5+6)

VII. Write short notes on:-

a) BOD and COD

b) Anaerobic digestion of effluent

c) Principle and applications of ultrafiltration (5+5+6)

UNIT – IV

VIII. Describe various techniques of immobilization of whole cells. Enumerate their advantages and disadvantages too. (10+6)

IX. Write short notes on:-

a) Discuss the production process and use of glutamic acid

b) Process for the production of acetic acid and it's use

c) Use of microorganisms in mineral beneficiation (5+5+6)

x-x-x