

AU-350

M.Sc. (Part—I) Semester—II (CBCS Scheme) Examination

2 BTB 2 : BIOTECHNOLOGY

(Bioprocess Engineering and Technology)

Paper—VI

Time : Three Hours]

[Maximum Marks : 100

Note :— (1) All questions are compulsory and carry equal marks.

(2) Draw well labelled diagram wherever necessary.

1. Discuss different approaches involved in the process of improvement of industrial microorganisms. 20

OR

Discuss the strategies to achieve maximum yield from genetically manipulated strains. 20

2. (a) Write in brief about inhibitors and their use in growth medium. 5
- (b) Define Monod's constant and discuss its significance. 5
- (c) Discuss the consequences which may occur if a foreign microorganism invades fermentation broth. 5
- (d) Discuss about choice of nitrate source and its effect on the pH of medium during the growth. 5

OR

- (e) Discuss about continuous sterilization process. 5
- (f) Discuss various approaches to achieve synchronous culture. 5
- (g) What are advantages and disadvantages of use of molasses as carbon source ? 5
- (h) What will happen to continuous culture if the value of $D \neq \mu$? 5
3. (a) What is $K_L a$? 5
- (b) Diagrammatically explain the Resistance Barriers for O_2 transfer in a bioreactor. 5
- (c) Draw well labelled diagram of air-lift reactor. Discuss its advantage over stirred tank reactor. 5
- (d) Describe foam sensing and control unit of a bioreactor. 5

OR

- (e) Draw simplified lay-out of computer controlled fermenter with one control loop. 5
- (f) Explain on-line sensor with suitable example. 5
- (g) Describe working of Rotating Biological Contactors (RBC). 5
- (h) Discuss pI controller in a bioreactor. 5
- 4. (a) Draw suitable diagram of rotary drum filtration system. Describe its working in brief. 5
- (b) What do you understand by cake-formation during filtration process ? Discuss in brief about factors affecting specific cake-resistant. 5
- (c) Describe the plate and frame filter press with neat diagram. 5
- (d) Explain liquid-liquid extraction with suitable example. 5

OR

- (e) Discuss the advantages of continuous centrifugation. Draw the schematic diagram of Disc bowl rotor. 5
- (f) Discuss any one physical method of cell disintegration to harvest intracellular product. 5
- (g) Comment upon super critical fluid extraction. 5
- (h) Discuss about pervaporation. 5
- 5. Discuss in detail about the factors which influence the productivity in solid state cultivation. 20

OR

Give comparative statement about solid state cultivation and submerged liquid culture with reference to any commercial product. 20