

2011**M.Sc.****3rd Semester Examination****MICROBIOLOGY****PAPER—XVI**

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Answer any two questions from each group.

Group — A

[Marks : 20]

1. (i) What is the advantage of Fed batch Fermentation ? 2
- (ii) Briefly discuss about air lift fermentors. 3
- (iii) Prove that ideal yield co-efficient for alcohol production from glucose is 0.51. 2
- (iv) Prove that for continuous fermentation process $\mu = D$ under steady state condition. 3
2. (i) What do you mean by D, Z and F value? What are their units? 3

(Turn Over)

- (ii) A fluid media with a viscosity of 0.05 PaS and density of 1009 kg/m³ is to be sterilized in a continuous system in a holding tube of 0.03561m diameter. The process should give 12D reduction of microorganism which has a D value of 0.0063 min. Calculate the length of the holding tube if the flow rate is $19 \times 10^{-3} \text{ m}^3/\text{min}$. 5
- (iii) Write the equation of convective & conductive heat transfer equation. 2
3. (i) Why $K_L a$ is used as a scale up criteria? *advantage and disadvantages*
- (ii) Describe ~~citric acid production by~~ solid state fermentation.
- (iii) What is expanded bed adsorption chromatography? 4+4+2

Group — B

[Marks : 20]

4. (a) Give an idea about the conventional and modern tool that are used for the improvement of industrial strain.
- (b) Schematically present the path of chlorotetracycline production. Why Sucrose is used instead of glucose in such production?
- (c) Briefly describe the citric acid production through submerged process. 3+4+3
5. (a) Give a list of metabolic products of Yeasts in the production of beer. How diacetyl is eliminated from beer?
- (b) What is lagging?
- (c) Mention the factors that are responsible for quality and flavour of wine. (3+1)+2+4
6. (a) Explain Copyrights and Trade Secrets.
- (b) State the recommendations that are made for farmer's right in International Debate 1991.
- (c) Write a note on immobilized enzymes. 2+3+5