2012

M.Sc.

3rd Semester Examination

MICROBIOLOGY

PAPER—MCB-304

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) Classify fermentation process on the basis of cell mass production & product formation. 2

(ii) Draw a schematic diagram of anaerobic batch STR. Mention the functions of its essential components. 3

(iii) What is the basic difference between packed bed column reactor and fluidized bed reactor? 2

(iv) Classify the fluids on the basis of Rheological Property. Define Renold's number and its significance. 3

2. (a) What are the various types of non-newtomian fluids? 2

(b) How K_la is measured by dyamic gassing out technique? 3

(c) What is Leudeking-Piret model? 2

(d) Acetobacter aceti are added to a vigorously aerated medium containing 10 g/l ethanol. After some time, ethanol concentration is 2 g/l and 7.5 g/l acetic acid is produced. How does the overall yield of acetic acid from ethanol compare with theoretical yield? 3

3. (i) What are the advantages and disadvantages of solid state fermentation process? What are the controlling parameters of this process ? Write about the raw materials used in this process. 5

(ii) What do you mean by scale up of a fermentor? What is the basis of scale up? Which parameters are involved in fermentas scale up? 3

(iii) What do you mean by yield coefficient? Formulate different yield coefficient using cell mass (X), Product (P) and Substrete (S). 2

Group — B

[Marks : 20]

4. (a) Mention the steps of wine production through a flow diagram.

(b) What do you mean by secondary wine fermentation? State its significance.

(c) Why SO_2 is added in wine during Post fermentation treatment?

(d) What is sparkling wine? How it is prepared? 4+3+1+2

5. (a) What is IPR? Discuss in details about the different forms of protection.

(b) Write a note whole cell immobilization mentioning its advantages and disadvantages. (1+4)+5

6. (a) Mention the Bio-chemistry of citric acid production.

(b) Name two centre where industrial strains are preserved.

(c) Briefly describe the method commercial production of protease. 4+1+5

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