

(2½ Hours)

QP Code : 05012

[ Total Marks : 75

- (1) All questions are compulsory.
- (2) All questions carry equal marks.
- (3) Draw neat labelled diagram wherever necessary.

(a) Do as directed (any three) :—

- (i) Give an example of homofermentative lactic acid bacteria. 3
- (ii) Name the starter culture used in butter.
- (iii) \_\_\_\_\_ enzyme is used to determine efficiency of pasteurization of milk.
- (iv) Fungi used in ripening of cheese.
- (v) Example of Hard Cheese.
- (vi) Flavouring compounds in yogurt.

(b) Discuss the following (any two) :—

- (i) Changes in flora of raw milk. 12
- (ii) Process of butter manufacture.
- (iii) Spoilage of milk.
- (iv) Pasteurization and MBRT test.

(a) Attempt the following (any two) :—

- (i) Give one example of semi-synthetic Penicillin. 2
- (ii) State an application of citric acid.
- (iii) Name the flavouring agent used in beer.
- (iv) Give one example of starchy raw material used for ethanol production.

(b) Explain (any one) :—

- (i) Clarification 1
- (ii) Wort.

(c) Elaborate on (any two) :—

- (i) Production of ethanol. 12
- (ii) Surface culture method for citric acid production.
- (iii) Production of red wine.
- (iv) Quick vinegar process.

(a) Give the role / function of (any three) :—

- (i) Down comer tube. 3
- (ii) Soyabean oil.
- (iii) Galvanic electrodes in fermentor.
- (iv) Pressure in a fermentor.
- (v) Thermistor in fermentor.
- (vi) Offline sensors.

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- (b) Attempt the following (any two) :—
- (i) Elaborate on the measurement and need to control dissolved oxygen fermentor.
  - (ii) Diagrammatically explain the Airlift fermentor with an outer loop.
  - (iii) Discuss the working and applications of Bubble Column Fermentor.
  - (iv) Enlist with suitable examples the three main classes of sensors and state how they are characterized in relation to their application for process control.
4. (a) Give one example of (any three) :—
- (i) Physical method of cell disruption.
  - (ii) Salting out reagent.
  - (iii) Continuous filter.
  - (iv) Agent used to flocculate bacteria.
  - (v) A centrifuge used to separate mycelia.
  - (vi) An anionic exchanger.
- (b) Give an account of (any two) :—
- (i) Precipitation with two examples.
  - (ii) Cell aggregation and flocculation.
  - (iii) Centrifugation in downstream processing.
  - (iv) Affinity chromatography in downstream processing- Principle and application.
5. Write short notes on (any three) :—
- (i) Streptomycin production.
  - (ii) Steps of cheese making.
  - (iii) Tower fermentor.
  - (iv) Enumeration of organism present in milk.
  - (v) Spoilage of beer.
  - (vi) Ultrasonication in downstream processing.

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**AC-Con.:1152-14.**