

TY Bsc. Biotech - Industrial Biotech
Sem V (2014/15) 2016-17

QP Code : 76999

(2½ Hours)

[Total Marks : 75]

- Note :** (1) All questions are compulsory
(2) All questions carry equal marks
(3) Draw labelled diagrams wherever necessary

1. a. Attempt the following (Any three) 3
- i) What is the aspect ratio for a tower fermenter?
 - ii) Which type of fermenters are used for long term culture of attached dependent cell lines?
 - iii) State one basic construction principle for gas entrainer nozzle in a deep jet fermenter
 - iv) State an advantage of using an airlift fermenter?
 - v) State an application of tower fermenter
 - vi) What is a packed bed fermenter used for?
1. b. Answer the following (Any two) 12
- i) State the significance and methods of pH control in a fermenter.
 - ii) Elaborate on the working and application of an airlift fermenter with an outer loop.
 - iii) What is the significance of foam in a fermenter? How is it controlled?
 - iv) Diagrammatically explain the working of a bubble column fermenter
2. a. Do as directed (Any three) 3
- i) State any one criterion essential to be satisfied by a culture to be inoculated in a fermenter
 - ii) State one application of middle skimmings
 - iii) Define primary screening
 - iv) What is inoculum development?
 - v) What does the scale up window define?
 - vi) What is pitching?
2. b. Answer the following (Any two) 12
- i) Discuss the use of secondary screening in search for novel metabolites
 - ii) Elaborate on the various aspects to be considered in the context of scale down
 - iii) Explain the development of inocula for mycelia processes.
 - iv) Write a note on primary screening

- 3 a. Name them (any three) 3
- i) Starter culture used in beer manufacture
 - ii) Inoculum in Streptomycin production
 - iii) Fungi used in Citric acid production
 - iv) Edible mushroom
 - v) Precursor used in Penicillin production
 - vi) Inert support used in an acetator
- 3 b. Discuss (any two) 12
- i) The production of red wine
 - ii) The fermentation of beta lactum antibiotic
 - iii) Acetic acid production
 - iv) Mushroom as SCP
- 4 a. Give examples of (any three) 3
- i) Salts used in recovery of proteins by precipitation
 - ii) Filter aids
 - iii) Batch filters
 - iv) Flocculating agents
 - v) Detergents used in cell disruption
 - vi) Inorganic adsorbants used in Chromatography
- 4 b. Elaborate on (any two) 12
- i). Any two types of continuous filters
 - ii) Cell aggregation and flocculation
 - iii) Cell disruption by liquid and solid shear
 - iv) Membrane processes in DSP
- 5 Write short notes on (any three) 15
- i) Scale up window
 - ii) Pressure measurement in a fermenter
 - iii) Inlet and exit gas analysis
 - iv) Animal cell culture
 - v) Beer production
 - vi) Whole broth processing
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