



BRAINWARE UNIVERSITY

Term End Examination 2022
Programme – M.Sc.(MB)-2022
Course Name – Microbial Fermentation
Course Code - MMBC103
(Semester I)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) Name the culture used in chemostat and turbidostat are the types of bioreactors
- | | |
|----------------------|------------------------|
| a) Batch culture | b) Continuous culture |
| c) Fed-Batch culture | d) Solid State culture |
- (ii) Write the disadvantages of continuous culture
- | | |
|---|--|
| a) It can rarely be used for other productions | b) The growth rate is higher |
| c) If contamination occurs, huge volumes of the product may be lost | d) It is very useful for processes involving the production of primary metabolites |
- (iii) Name of the following which is NOT a criterion for the choice of an organism
- | | |
|---|---|
| a) The organism must be genetically stable | b) The organism must be able to produce a high yield of product |
| c) The optimum temperature for the growth of an organism must be above 50°C | d) The organism must be able to grow in an easily available nutrient medium |
- (iv) Analyze the method which is useful for the isolation and detection of organisms having the ability to produce antibiotics
- | | |
|---------------------------------|----------------------------|
| a) Crowded plate technique | b) Auxanographic technique |
| c) Enrichment Culture technique | d) Indicator dye technique |
- (v) Select the method is useful for isolation and detection of organisms having the ability to produce organic acids
- | | |
|---------------------------------|----------------------------|
| a) Crowded plate technique | b) Auxanographic technique |
| c) Enrichment Culture technique | d) Indicator dye technique |
- (vi) Examine the following method which is useful for detection and isolation of those microorganisms which are capable of growing on a particular nutrient medium
- | | |
|---------------------------------|----------------------------|
| a) Crowded plate technique | b) Auxanographic technique |
| c) Enrichment Culture technique | d) Indicator dye technique |
- (vii) Name the method which involves sublimation of cell water

- a) Cryopreservation
c) Dried Culture
- b) Lyophilization
d) Desiccation
- (viii) Select the following which is NOT the advantage of lyophilization
- a) Dissolution of product
c) Handling and processing time increases
- b) Processed in aseptic conditions
d) Do not use heat
- (ix) Establish the system which is/are used in dried culture preservation
- a) Sand
c) Sand and Soil
- b) Soil
d) Slits
- (x) Express the advantage of batch sterilization over continuous sterilization
- a) Superior maintenance of medium quality
c) Automatic control
- b) Ease of scale-up
d) Lower equipment costs
- (xi) Identify that How long does it take for the autoclave to complete its cycle
- a) 30-35 minutes
c) 15-20 minutes
- b) 50 min to 1 hr
d) 10-15 minutes
- (xii) Expression that Which of the following is not the property of the fermented food
- a) Highly Nutritious
c) Anti-toxicity
- b) Toxic
d) Anti-nutrient
- (xiii) Establish that Probiotics are used in the prevention of
- a) Cardiac disease
c) Digestive tract disease
- b) Hypertension
d) Lungs infection
- (xiv) Decide the method which is useful for detection and isolation of those microorganisms which are capable of growing on a particular nutrient medium
- a) Crowded plate technique
c) Enrichment Culture technique
- b) Auxanographic technique
d) Indicator dye technique
- (xv) Liquid water-soluble substances appropriately diluted are dispensed into sterile test tubes, to which are added a measured amount of the test organism and then this is transferred into tubes of sterile media. Examine this method helps in determining
- a) whether the inhibitory action is bactericidal
c) decrease in the amount of growth
- b) whether the inhibitory action is bacteristatic
d) complete absence of growth

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Write the flow chart of fermentation of beer? (3)
3. Illustrate that how temperature affect fermentation? (3)
4. Illustrate the fermentation pathway in muscle cells (3)
5. Establish pyruvate fermentation with reaction (3)
6. Compare between batch culture and continuous culture (3)

OR

Write a note on the commercial production of vitamins (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Write the factors involved in SSF process (5)
8. Define probiotics with their characteristics (5)
9. Describe the industrial process for manufacture of citric acid with a neat flowsheet. (5)
10. Illustrate the details of one fruit based fermented product with schematic presentation (5)
11. Explain the industrial process for the production of beta-lactams-penicillin (5)
12. Write the details of one dairy based fermented product with schematic presentation (5)

OR

Diagram the ideal fermenter with the function of each important part

(5)
