

Code No. : 7552

Sub. Code : ZMBM 42

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2023.

Fourth Semester

Microbiology – Core

FERMENTATION AND INDUSTRIAL
MICROBIOLOGY

(For those who joined in July 2021 – 2022)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The preservation by liquid nitrogen is called as _____.
- (a) Lyophilization
(b) Freeze-drying
(c) Cryopreservation
(d) Dessiccation

6. The continuous culture or fermentation can be used to produce _____.
- (a) biomass
(b) primary metabolites
(c) secondary metabolites
(d) antibodies
7. Downstream processing is not _____.
- (a) purification
(b) separation
(c) vary with product
(d) occurs during the marketing phase
8. The slurry is _____.
- (a) a porous membrane used to retain the solids
(b) a suspension to be filtered
(c) a clear liquid passing through the filter
(d) the solids which are present on the filter
9. Who was the first person to discover an antibiotic?
- (a) Alexander Fleming (b) Rene Dubois
(c) Waksman (d) Louis Pasteur

2. Continuous culture leads to _____.
- (a) smaller biomass
(b) higher yields of desired proteins
(c) both (b) and (c)
(d) higher yields of recombinant DNA
3. A period during which the growth rate of cells gradually increases is known as _____.
- (a) lag phase (b) log phase
(c) stationary phase (d) death phase
4. The batch culture or fermentation can be used to produce _____.
- (a) amino acids (b) organic acids
(c) single cell protein (d) antibiotics
5. _____ and coils are used to maintain the temperature of the fermentation medium inset the bioreactor.
- (a) Cooling jackets (b) Transducers
(c) Capacitors (d) Electrochemicals

10. What is the nutrient medium for beer?
- (a) barley meat (b) fermented cereals
(c) fermented molasses (d) fermented juices

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Prepare concepts of industrial microbiology.
Or
(b) Show strain improvement techniques.
12. (a) Recommend functions of bioreactor.
Or
(b) Justify involved in stages of fermentation.
13. (a) Apply bubble column reactors.
Or
(b) Analyze role of computer in process control.
14. (a) Organize application of downstream processing.
Or
(b) Discuss about purification of downstream processing.

15. (a) Show production of enzymes (amylase).

Or

(b) Assume production of Wine.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16. (a) Categorize types of processing.

Or

(b) Assess growth and product formation in industrial process.

17. (a) Determine principal and factors involved in fermenter design.

Or

(b) Design inoculum development for large scale.

18. (a) Develop process control in fermentation.

Or

(b) Interpret submerged and solid state.

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19. (a) Create stages of down stream processing.

Or

(b) Predict overview on the process in downstream.

20. (a) Criticize types of immobilization.

Or

(b) Formulate production of antibiotics (Penicillin and Streptomycin).

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