

(6 pages)

Reg. No. :

Code No. : 7099

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M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2018.

Fourth Semester

Microbiology

FERMENTATION AND INDUSTRIAL
MICROBIOLOGY

(For those who joined in July 2016 and afterwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Industrial microbiology, mainly depends on the phenomenon.
 - (a) Pasteurization
 - (b) Fermentation
 - (c) Vaccination
 - (d) Both (a) and (b)

2. Large Vessel containing all the parts and conditions necessary for the growth of desired microorganism is called
 - (a) Bioreactor
 - (b) Autoreactor
 - (c) Impeller
 - (d) None of these
3. The most commonly used microorganism in alcohol fermentation is
 - (a) Aspergillus niger
 - (b) Bacillus subtilis
 - (c) Sacharomyces cerevisiea
 - (d) E.coli
4. If the microorganisms are allowed to nutrient medium is called
 - (a) Submerged fermentation
 - (b) Surface fermentation
 - (c) Dual fermentation
 - (d) All of these
5. Methods used to get immobilized enzymes
 - (a) Adsorption
 - (b) Encapsulation
 - (c) Covalent bending
 - (d) All of thees

6. The by-product during streptomycin production is
(a) Vitamin (b) Proline
(c) Vitamin B₁₂ (d) None of these
7. The penicillin produced in large scale submerged fermentation are
(a) Penicillin A
(b) Penicillin D
(c) Penicillin G
(d) None of these
8. A trickling filter is used for
(a) Antibiotic production
(b) Beer production
(c) Citric acid manufacturing
(d) Waste water treatment
9. The importance of yeast extract in the industrial fermenter is
(a) Act as vitamin and micronutrient source
(b) Act as nitrogen source
(c) Act as carbon source
(d) Act as carbon and vitamin source

10. Secondary metabolites are
(a) Essential to microbe function
(b) By-products of metabolism that are not important to microbe function
(c) Products that require addition processing before they can be packaged
(d) Harvested during the exponential phase of growth

PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Give short notes on industrial sterilization.
Or
(b) Explain the growth and product formation in industrial process.
12. (a) Write the components of bioreactor.
Or
(b) Discuss about the scale up fermentation.
13. (a) Describe about the industrial fermentor.
Or
(b) Write about the shake flash fermentor.

14. (a) What are the types of cell disruption?

Or

(b) Give short notes on crystallization and Lyophilization.

15. (a) Write the production of Vinegar in industries.

Or

(b) Explain the production of amino acids.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) What is screening? Explain its types.

Or

(b) Explain the raw materials used in industrial fermentation.

17. (a) Give a detailed account on scale up fermentation.

Or

(b) Write the basic components and functions of fermentor.

18. (a) Explain the types of bioreactors.

Or

(b) Describe the process control in fermentation.

19. (a) Give a brief account on down stream processing.

Or

(b) Discuss the stages of up stream processing.

20. (a) Write the industrial products produced by microorganisms.

Or

(b) Explain the principle, types, significance and applications of immobilization.