(6 pages) **Reg. No. :** .....

Code No. : 10064 E **Sub. Code : CMMI 62**

B.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2025

Sixth Semester

Microbiology – Core

Major – INDUSTRIAL MICROBIOLOGY AND BIOPROCESS TECHNOLOGY

(For those who joined in July 2021 and 2022 only)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. What discovery in 1929 is considered as a land mark in industrial microbiology?
   (a) Introduction of antifungal drugs
   (b) Discovery of penicillin
   (c) Production of streptomycin
   (d) Mass preparation of antiviral drugs

2. Generally, secondary metabolites are produced during ————————phase.
   (a) Lag (b) Log
   (c) Stationary (d) Death

3. Anaerobes are not considered as a choice for the production of ————————.
   (a) Biogas (b) Solvent
   (c) Food (d) Antibiotics

4. Pulse Field Fermentor is useful
   (a) To accelerate fermentation
   (b) To improve extraction
   (c) To control spoilage of microbes
   (d) All the above

5. Which one of the following is NOT an inhibitor?
   (a) 6 Amino-penicilinc acid
   (b) Heavy metals
   (c) Furan derivatives
   (d) Organic acids

6. Which one of the following is not relevant to Synthetic media?

(a) Chemically well defined

(b) Reproducible

(c) Effect of each chemical is known

(d) Cheaper

7. Select the unrelated statement about sedimentation

(a) Removal suspended solids from water

(b) Decrease turbidity

(c) Makes the water fit for filtration and disinfection

(d) It is a chemical process

8. Reverse Osmosis uses

(a) Bacteria for water purification

(b) Electrodes for water purification

(c) Semi permeable membrane for water purification

(d) Electrolytes for water purification

9. Protease are not useful for

(a) Food processing

(b) Cheese making

(c) Soy sauce making

(d) DNA amplification

10. The pH set for Citric acid fermentation is ———.

(a) 2-4 (b) 5-7

(c) 8-9 (d) 10-12

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Comment of fed batch culture.

Or

(b) How do we isolate industrially important bacteria?

12. (a) What do you know about aerating devices in a fermentor?

Or

(b) Comment on Air Lift Fermentors.

13. (a) Define: Precursor and explain it's role with one example.

Or

(b) Make a note on the diverse nitrogen sources used in media formulation.

14. (a) Briefly explain about the steps involved in DSP.

Or

(b) Write an account on ultrafiltration.

15. (a) List out the applications of glutamic acid.

Or

(b) Sketch about the by-products of streptomycin fermentation.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) How do we preserve and maintain bacteria? – Explain.

Or

(b) Record the need and methods of strain improvement.

17. (a) Highlight the importance and types of immobilisation.

Or

(b) List out the various factors to be monitored while operating fermentors.

18. (a) Write an essay on inoculum development.

Or

(b) Showcase the different types of sterilization methods employed in fermentation technology.

19. (a) Depict the roles of chromatography in DSP.

Or

(b) Discuss in detail about cell disruption techniques.

20. (a) What do you know about vinegar production?.

Or

(b) Unzip the role of microbes in xanthan production along with it's applications.

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