

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2025
(Sixth Semester)

Branch – MICROBIOLOGY

INDUSTRIAL MICROBIOLOGY

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 Choose the following microorganism does not have the property of production of secondary metabolites
(i) Filamentous fungi (ii) Filamentous bacteria
(iii) Sporing bacteria (iv) *Enterobacter* sp.
- 2 Name the following fermenter, the impeller is replaced by the constant flow of gas
(i) Airlift fermenter (ii) Tower fermenter
(iii) Hollow fibre (iv) Perfusion bioreactor
- 3 Match the following is fermentation processes
(i) Batch process (ii) Continuous process
(iii) Both a and b (iv) Fed batch process
- 4 Which of the following is a downstream process?
(i) Product recovery (ii) Screening
(iii) Media formulation (iv) sterilization of media
- 5 Identify the major ingredient for production of penicillin is
(i) Sugar cane molasses (ii) Corn Steep Liquor
(iii) Starch (iv) Wheat grains

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a. Outline the industrially important microorganisms.
OR
b. Organize the primary technique for fermentation process.
- 7 a. Analyze the design of general fermentor with neat diagram.
OR
b. Explain the industrial production of membrane bioreactor.
- 8 a. State about formulation of medium for industrial fermentation.
OR
b. Narrate the sterilization methods for fermentation process.
- 9 a. Describe the cell disruption methods.
OR
b. Bringout the application of rotatory drum filters.
- 10 a. Develop the microbial production of lactic acid.
OR
b. State the microbial production of wine.

Cont...

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

11 a. Elucidate account on strain improvement and preservation methods of fermentation process.

OR

b. Discuss the Auxotrophic mutants with suitable examples.

12 a. Summarize the working mechanism and application of tower fermentor.

OR

b. Highlight the structure and uses of airlift fermentor.

13 a. Infer the development of inoculums for various fermentation process.

OR

b. Distinguish the mechanism of string and mixing of upstream processing.

14 a. Enumerate the purification of extracellular products.

OR

b. Examine the liquid-liquid extraction.

15 a. Point out the industrial production of citric acid.

OR

b. Survey the microbial production of penicillin.

Z-Z-Z

END