

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: PHARMACY
BRANCH: PHARMACY**

**SEMESTER: III
SESSION: MO/2025**

SUBJECT: BP303T PHARMACEUTICAL MICROBIOLOGY

TIME: 3.00 Hours

FULL MARK: 75

INSTRUCTIONS:

1. The missing data, if any, may be assumed suitably.
2. Before attempting the question paper, be sure that you have got the correct question paper.
3. Tables/Data handbook/Graph paper etc. to be supplied to the candidates in the examination hall.
4. This question paper consists of (03) three parts. Read the part wise instructions before attempting the questions.

PART-I

Objective types questions (Instruction: Answer all questions)

- Q1. (10 x 2 = 20 Marks)
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|---|---------|
| A. Differentiate between optimum growth temperature and maximum growth temperature | C04 |
| B. Compare the functions of fimbriae with pilli and Capsule with Slime layer. | C01+C02 |
| C. At which phase of growth the microorganisms are most susceptible against action of sterilizing agents? Cite reason. | C02+C03 |
| D. Classify different types of staining methods with example of each class. | C03 |
| E. Differentiate between prokaryotic and eukaryotic cell | C04 |
| F. Classify different types of culture media with example of each class. | C01+C02 |
| G. Identify the discrepancy in the following statement and replace it with a suitable word: "HEPA filter kills 99.97% of microbes larger than 0.3 μm " | C05 |
| H. What are biological and chemical indicators? | C01+C02 |
| I. Define TDP and TDT. | C04 |
| J. State the sterilization parameters for hot air oven and autoclave. | C01 |

PART-II

Short Answers

(Instruction: Answer seven out of nine questions)

(7 x 5 = 35 Marks)

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|---|---------|
| Q2. Classify microorganisms based on their shape with examples of each class. | C01 |
| Q3. Compare the compositions of gram positive and gram-negative cell wall. | C01 |
| Q4. Classify major nutritional types of microorganisms with examples. Indicate their source of energy. | C02 |
| Q5. Illustrate and explain the growth curve of bacteria. | C02 |
| Q6. Elaborate the principle and procedure of isolation and preservation of microorganisms. | C03+C04 |
| Q7. Elaborate the principle, advantages and limitations of Rideal Walker and Chick Martin tests. | C04+C05 |
| Q8. What are the different classes of fungi? Discuss with examples. | C01+C02 |
| Q9. Illustrate the principle and function of an equipment used for sterilization of air. | C03+C04 |
| Q10. Compare the functions of different components used in the aerobic and anaerobic media for sterility testing. | C04+C05 |

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PART-III
Long Answers
(Instruction: Answer two out of three questions)

(2 x 10 = 20 marks)

- Q11. How does the bright field microscope work? Describe with a suitable diagram. CO1
- Q12. Classify and elaborate the chemical sterilization methods. CO4
- Q13. Discuss the structure and function of the following with appropriate illustrations and examples: CO3+CO4
a) Flagella; b) Glycocalyx; c) bacterial cell wall d) plasma membrane

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