

MICROBIOLOGY
PAPER-I

MIC/J/18/18/I

Time: 3 hours
Max. Marks:100

IMPORTANT INSTRUCTIONS

- Attempt all questions in order.
- Each question carries 10 marks.
- Read the question carefully and answer to the point neatly and legibly.
- Do not leave any blank pages between two answers.
- Indicate the question number correctly for the answer in the margin space
- Answer all the parts of a single question together.
- Start the answer to a question on a fresh page or leave adequate space between two answers.
- Draw table/diagrams/flowcharts wherever appropriate.

Write short notes on:

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| 1. | Discuss the general principles of Biomedical Waste Management (BMW). Highlight the major changes in the BMW 2016 Rules. | 10 |
| 2. | Enumerate laboratory acquired infections. Classify biological agents based on biohazard and discuss biosafety measures. | 2+(4+4) |
| 3. | Different subsets of T cells and their role in immune regulation. | 10 |
| 4. | What are the special types of Microscopes? Discuss the principle of Fluorescence Microscope. Enumerate its applications. | 3+4+3 |
| 5. | What are monoclonal antibodies? Briefly discuss the hybridoma technology and its diagnostic applications. | 2+(4+4) |
| 6. | Describe mechanism of action of antibiotics in bacteria. Enumerate antibiotics inhibiting cell wall synthesis. Discuss various methods of antimicrobial susceptibility testing in microbiology laboratory. | 3+2+5 |
| 7. | Describe the structure of cell wall of bacteria. Enumerate the differences between the cell wall of Gram-positive bacteria and Gram-negative bacteria. | 5+5 |
| 8. | What are biofilms? Describe the different stages and its role in persistence of infection. | 2+(4+4) |
| 9. | What are disinfectants? How are disinfectants graded? Describe the testing of disinfectants in a hospital setting | 2+4+4 |
| 10. | Gut microbiome. | 10 |
