

MICROBIOLOGY**PAPER-I**

Time: 3 Hours
Max. Marks: 100

MICRO/D/19/18/I

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:

1. Define biofilms. Describe their role in bacterial pathogenesis and various methods of biofilm detection. 2+4+4
2. What is quorum sensing? Discuss in detail about its role in bacterial virulence. 4+6
3. Enumerate nucleic acid amplification techniques used in a diagnostic microbiology. Discuss in detail about nucleic acid sequence based amplification (NASBA) and its applications. 3+(5+2)
4. What is sterilization? Discuss principle of plasma sterilizers. Write its advantages as well as uses. 3+3+(2+2)
5. Describe in detail methods of HLA typing. Discuss merits and demerits of each method and also add a note on HLA typing for the next-generation sequencing. 5+3+2
6. Describe monoclonal antibodies. Discuss emerging trends and newer developments in monoclonal antibodies. 4+6
7. Enumerate major Hospital Acquired Infections (HAI). Discuss in detail about laboratory diagnosis of Ventilator Associated Pneumonia (VAP). Add a note on surveillance of VAP in a hospital setting. 2+4+4
8. Enumerate potential pathogens found and/or transmitted through milk. Describe various methods used for the assessment of bacterial contamination of milk. 4+6
9. Define 'Pathogenicity Islands' and their role in bacterial pathogenesis with suitable examples. 4+6
10. Discuss the role of microbiota in health and diseases. 10
