

**MICROBIOLOGY**

PAPER-IV

MICRO/D/18/18/IV

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:**

1. Automation in Microbiology: 5+5  
a) Various methods and their principle.  
b) Advantages and disadvantages of each method.
2. Zika virus: 4+6  
a) Epidemiology.  
b) National guidelines for laboratory diagnosis.
3. Define Ventilator associated pneumonia (VAP) and describe methods of microbiological diagnosis of VAP. What is the "bundle of care" for prevention of VAP? (2+5)+3
4. Principle and role of Next Generation Sequencing in Microbiology. 10
5. Influenza A: 3+4+3  
a) The current status of influenza in India.  
b) Laboratory diagnosis of H1N1.  
c) Prophylaxis and treatment of H1N1.
6. Role of nanotechnology in clinical microbiology. 10
7. Globally emerging hantaviruses. 10
8. Antimicrobial stewardship program. 10
9. Various markers of sepsis and their diagnostic and prognostic role. 10
10. Current status of meningococcal vaccine in India. 10

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