

**MICROBIOLOGY**

PAPER – IV

MICRO/D/15/18/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.	a) Enumerate the various automated identification systems used in clinical microbiology. b) Their principles and applications in clinical microbiology.	2+(4+4)
2.	a) Define Biomarkers. b) Application of biomarkers in diagnosis and prognosis of infectious diseases.	1+9
3.	Define conjugate vaccines. Give examples of these conjugate vaccines and describe their principles, uses, advantages and disadvantages.	1+9
4.	a) What are bio safety cabinets? b) Various types of biosafety cabinets and their uses.	1+9
5.	Probiotics.	10
6.	Strategies for surveillance of nosocomial infections used in a critical care health set up.	10
7.	a) What are the bacteriological indicators of water pollution? b) Tests done for coliform bacteria and Esch.coli.	4+6
8.	What are the factor that affect recovery of pathogens from blood specimen? What is the advantage of biphasic culture and where is it commonly used? Describe lysis centrifugation blood culture technique.	3+3+4
9.	Enumerate the steps in the investigation and control of outbreaks.	2+8
10.	List the agents of bioterrorism. What are the key features of the agents to be potentially used as bioterrorism weapons? Outline the role of sentinel laboratory in bioterrorism.	2+4+4

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