MICROBIOLOGY

PAPER – I

MICRO/D/16/18/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:

1. Principle and applications of fluorescent microscopy. 5+5

2. a) Define disinfectants. 2+8
   b) Basis of grading disinfectants with examples, and their mechanisms of action.

3. Methicillin resistant Staphyloccous aureus (MRSA): 2+2+2+4
   a) Mechanism of resistance
   b) Phenotypic methods of detection
   c) Genotypic methods of detection
   d) Prevalence and clinical implications

4. a) What is polymerase chain reaction (PCR)? 5+5
   b) Enumerate the differences between PCR and LAMP (loop mediated isothermal amplification).

5. Genetic basis of antibody diversity in humans. 10

6. Biomedical/hospital waste: 2+2+6
   a) Types
   b) Segregation
   c) Types of waste generated in Microbiology laboratory and its their methods of disposal

7. Lysogenic or phage conversion: 4+3+3
   a) Principle.
   b) Give one example of medical importance.
   c) Differentiate it from transduction.

8. Agglutination reaction: 2+4+4
   a) Definition
   b) Zone phenomenon
   c) Applications

9. Epidemiological typing methods: 2+8
   a) Types of methods
   b) Give 3 examples of each with advantages and disadvantages.

10. a) What is quality assurance (QA) in microbiology laboratory? 2+(6+2)
    b) Components of QA and its importance.

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