

**MICROBIOLOGY**

**PAPER – IV**

Time : 3 hours

Max. Marks : 100

MICRO/D/17/18/IV

**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. What is fecal microbiota transplant? Discuss its role in medicine. 3+7
2. a) Name the sequence based techniques used in microbiology. 5+5  
b) How do these techniques compare with proteomics based methods?
3. a) Name different pneumococcal vaccines available and their indications. 5+5  
b) What are the HPV vaccines and their role in prevention of infections?
4. a) What do you understand by Antimicrobial Stewardship Programme (ASP)? 3+4+3  
b) Name the components of ASP.  
c) Define antibiogram.
5. a) What are the steps of an outbreak investigation in case of healthcare associated infections? 4+2+4  
b) What are the typing methods used for determining the relatedness of bacteria during an outbreak?  
c) Mention advantages and disadvantages of each.
6. a) Mention the methods of testing the bacteriological quality of drinking water and their interpretation. 6+4  
b) State the methods of collection of water from taps and rivers for testing.
7. a) Enumerate the modifications in the 2016 Guidelines of Biomedical Waste Management Rules. 4+6  
b) State the principle and working of an effluent treatment plant.

**P.T.O**

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| 8.  | a) Define “Hand hygiene”.<br>b) What methods are used to practice hand hygiene?<br>c) Name various methods that can be used to measure compliance to hand hygiene. | 2+4+4 |
| 9.  | What is the principle behind ‘One health’ and what are the components?   | 10    |
| 10. | a) Procalcitonin in the infectious disease diagnosis and prognosis.<br>b) What are the advantages and limitations?   | 6+4   |

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