

MICROBIOLOGY

PAPER-IV

Time: 3 hours
Max. Marks:100

MICRO/J/19/18/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:

- Define multiple drug resistant (MDR) bacteria. 3+7
 - Role of active surveillance culture in prevention of hospital acquired infections caused by MDR pathogens.
- Enumerate the non-antibiotic alternatives to treat bacterial infections. 4+6
 - Current status of bacteriophage therapy in management of bacterial infections.
- Whole genome sequencing. 3+2+3+2
 - RIBA.
 - Tuberculosis vaccines.
 - Inhaled antibiotics for Gram negative respiratory infections.
- Define outbreak, epidemic and pandemic. Give an outline of the role of a clinical microbiologist in management of an infectious disease outbreak. 3+7
- Define taxonomy. 3+7
 - Advantages and disadvantages of molecular taxonomy.
- Define reverse vaccinology. Give an outline of reverse vaccinology technique with example. 3+7
- Define pre-emptive, empiric and prophylactic antibiotic therapy. 3+7
 - Principles of prophylactic antibiotic therapy in prevention of surgical site infections.
- Enumerate the molecular epidemiological typing methods for bacteria. 4+6
 - Parameters to evaluate efficacy of a typing method.
- CRISPR-Cas system and enlist the applications of the CRISPR-Cas technology in biomedical science. 5+5
- Enumerate the uses of animal models in infectious disease research. 4+6
 - Invertebrate models currently used in infectious disease research.
