

MICROBIOLOGY**PAPER-I**

Time: 3 hours

MICRO/J/19/18/I

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. Define human microbiome. Write in short about its composition and role in Microbiology. 2+3+5
2. Define virulence and pathogenicity. Briefly write about the methods of determining virulence of a microorganism. (2+2)+6
3. Define antiseptics and disinfectants. Enumerate the sterilizing disinfectants used in hospital practice. Enumerate the factors that affect efficacy of disinfection. (1+1)+3+5
4. Define catheter related blood stream infections (CRBSI) and central line associated blood stream infections (CLABSI). Write in short about the laboratory diagnosis of CRBSI. (2+2)+6
5. What is viable but non-culturable (VNC) state of bacteria? Mention in short the significance of VNC state of bacteria in epidemiology and management of bacterial infections. 2+4+4
6. Enumerate the mechanisms of genetic variation in bacteria. Write a short note on mobile genetic elements and their role in antimicrobial resistance. 3+3+4
7. Define pathogen associated molecular patterns (PAMPs) and toll-like receptors (TLRs). Write a short outline of their role in immunity. 2+2+6
8. Draw a labelled diagram of the structure of secretory immunoglobulin A (IgA) and write about its role in mucosal immunity. 5+5
9. What is major histocompatibility complex (MHC)? What is its role in antigen recognition and presentation? 4+6
10. Define cytokines and chemokines. Discuss the pathogenesis of immune reconstitution inflammatory syndrome (IRIS). 2+2+6
