

[Time: 3 Hours]

[ Marks:80]

Please check whether you have got the right question paper.

- N.B: 1. Attempt all questions.  
2. Draw a neat labelled diagram wherever necessary.

- Q.1** Answer the following.
- a) Define Numerical aperture with its significance. 2
  - b) Explain applications of sanitizer using a suitable example. 2
  - c) Define decimal reduction time with its significance. 2
  - d) Write any two examples of positive control bacteria used in sterility testing. 2
  - e) Define sterilization and Name the biological indicator used in moist heat sterilization. 2
  - f) Explain the significance of differential media in microbiology. 2
  - g) Write the diagnostic test and causative agent for bacillary dysentery. 2
  - h) Name any two fungal infections with the name of the causative agent. 2
  - i) Write the contributions of Louis Pasteur in the fermentation. 2
  - j) Explain salmonella infections. 2
- Q.2**
- a) Explain transmission electron microscopy using a neat diagram with its applications. 4
  - b) Write a note on protozoa infections. 4
  - c) Write in brief total counting methods of bacteria. 4
- Q.3**
- a) Write a note on methods of cultivation of anaerobes. 4
  - b) Discuss identification of bacteria on the basis of morphological and colony characters. 4
  - c) Explain continuous cultivation of bacteria using a suitable diagram. 4
- OR**
- c) Distinguish between gram positive and gram negative bacteria.
- Q.4**
- a) Write economic importance of algae. 4
  - b) Write in detail replication of lysogenic viruses. 4
  - c) Explain asexual methods of fungal reproduction. 4
- OR**
- c) Write a note on rickettsia infections. 4
- Q.5**
- a) Discuss radiation sterilization with respect to method mechanism of action and application. 4
  - b) Explain mode of action, limitations and applications of quaternary ammonium compounds. 4
  - c) Write a note on phenol coefficient method. 4
- OR**
- c) draw a neat labelled diagram of : i) Autoclave ii) Hot air oven 4
- Q.6**
- a) Write a note on principle and applications of laminar air flow unit. 4
  - b) Explain diffusion bioassay methods of an antibiotic. 4
  - c) What are limit tests? Write limit tests for Pseudomonas aeruginosa. 4
- OR**
- c) Explain methods of environmentally safe disposal of microbial waste. 4

\*\*\*\*\*