**Time : 3 Hours** **Marks: 70**

Q.1 Answer the following

| | | |
|---|---|---|
| a. | Name the causative agent and diagnostic test for bacillary dysentry | 1 |
| b. | Define and give significance of TDP | 1 |
| c. | Define bacterial Spore | 1 |
| d. | Name the causative agent of typhoid | 1 |
| e. | Name the biological indicator of Radiation sterilization | 1 |
| f. | Define resolving power | 1 |
| g. | Define Oncogenes | 1 |
| h. | Write incubation temperatures in sterility testing and name of sterility testing media | 2 |
| i. | Name any two fungal infections with the causative agent | 2 |
| j. | Name any two Rickettsial infections with the causative agent | 2 |
| k. | Describe glycocalyx of a bacteria | 2 |

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| Q.2 | a) | Explain Dark field microscopy using a neat labelled diagram with its applications | 4 |
| | b) | Discuss Dry heat sterilization with respect to method, the mechanism of action & applications | 4 |
| | c) | Which are different methods of preservation of bacteria | 3 |
| Q.3 | a) | Describe lytic cycle of $T_4$ bacteriophage | 4 |
| | b) | Discuss in detail Phenol coefficient test for evaluation of disinfectants | 4 |
| | c) | Distinguish between bacteria and fungi | 3 |
| | | **OR** | |
| | | Distinguish between prokaryotic cell and Eukaryotic cell. | |
| Q.4 | a) | Enlist different methods of counting of bacteria and explain any one method in detail | 4 |
| | b) | Discuss in detail Protozoal infections | 4 |
| | c) | Explain in detail methods of reproduction in fungi | 3 |
| Q.5 | a) | Discuss in detail sterilization by radiation | 4 |
| | b) | Write a note on alcohol as a disinfectant with mode of action and it's Practical applications | 4 |
| | c) | Explain biological & economic importance of algae | 3 |
| Q.6 | a) | Write a note on gram negative bacterial cell wall using a neat labelled diagram | 4 |
| | b) | Explain phases of bacterial growth curve | 4 |
| | c) | Explain the principle and procedure of Gram staining technique | 3 |

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