PART – A (5 x 4 = 20 Marks)  
(Short Answer Type)  
Note: Answer any FIVE of the following questions.

1. Radiation methods of sterilization  
2. Surface disinfectants  
3. Pure culture techniques  
4. Sand culture preservation  
5. Carbohydrates  
6. Sphingolipids  
7. Buffers  
8. Colorimetry

PART – B (4 x 15 = 60 Marks)  
(Essay Answer Type)  
Note: Answer all the questions.

9. (a) Explain about the principle and working of autoclave and laminar air-flow.  
    OR  
(b) What is phenol coefficient? Explain about phenol as chemical sterilizing agent.

10. (a) What is the significance of preservation of microbial cultures and write note on lyophilization?  
     OR  
(b) Define enrichment and write about the micromanipulators and its use.

11. (a) Write about the general characteristics of amino acids.  
     OR  
(b) Explain the structure of nucleotides with illustrations.

12. (a) What is hydrogen ion concentration and explain importance of pH in bacteriological studies.  
     OR  
(b) Write about the principle and applications of electrophoretic techniques.

*****