

B.Sc. (Biotechnology) 1st Semester

GENERAL MICROBIOLOGY—A

Paper—BT-8

Time Allowed—3 Hours] [Maximum Marks—40

Note :— Attempt the entire Section A, any *five* questions from Section B and any *two* questions from Section C.

SECTION—A

1. Define the following very briefly :

- (i) Synthetic medium
- (ii) Extremophiles
- (iii) Pure culture
- (iv) Disinfection
- (v) Ribotyping
- (vi) Microbial culture collection
- (vii) Peritrichous flagella
- (viii) Yeast.

1×8

SECTION—B

- 2. (a) Define limit of resolution of a Bright field microscope.
- (b) How the resolving power of light microscope can be improved ?
- 3. Compare and contrast various methods employed for the sterilization of culture media.

4

- 4. (a) Differentiate between bacteria and viruses.
- (b) Differentiate between enrichment medium and maintenance medium. 2+2
- 5. (a) Give a schematic cycle of a lytic virus.
- (b) What is lyophilization ? 2+2
- 6. (a) Why gram negative bacteria are strong pathogens ?
- (b) Differentiate between negative and positive bacteria staining. 2+2
- 7. (a) What are serotypes ? Discuss their significance.
- (b) What are the components of *Microbacterium* cell wall ? 2+2
- 8. (a) What is molecular taxonomy ?
- (b) What is Bergey's manual of determinative bacteriology ? How many volumes exist for this manual ? 2+2
- 9. (a) How classical taxonomy is different from numerical taxonomy ?
- (b) Briefly discuss the principle of DNA hybridization. 2+2

SECTION—C

- 10. Discuss various types of light microscopy. Give the principle and application of each. 6
- 11. Discuss various methods used for purification and preservation of microbes. 6
- 12. Draw the typical structure of a bacterial cell and label its various parts. Differentiate gram +ve and gram -ve bacteria on the basis of their cell wall. 6
- 13. Describe the various characteristics taken into consideration for bacterial classification. 6