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B.Tech. Third Semester (Bio-Technology) (C.B.S.)

Microbiology Paper - I

P. Pages : 1 **TKN/KS/16/7891**

Time : Three Hours Max. Marks : 80

Notes : 1. All questions carry equal marks.
2. Answer **any five** questions.
3. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) What are the distinguishing features of Bright field and dark field microscopy. **8**

b) Describe the chemical composition of bacterial cell wall and point out the difference between gram positive and gram negative cell wall. **8**

2. a) Describe different methods of isolation of pure culture. **8**

b) Explain Autotrops, Heterotrops, chemolithotrops, organotrops with respect to their nutritional requirement. **8**

3. a) Explain with diagram the growth curve of bacteria and describe practical application of bacterial growth culture. **8**

b) Briefly explain the estimation of bacterial number of indirect method. **8**

4. a) Compare the efficiency and practical application of dry heat sterilization with that of moist heat sterilization. **8**

b) Explain the following terms. **4**

i) TDP ii) TDT curve iii) F- Value iv) Z - Value

c) Describe Gaseous sterilization. **4**

5. a) Explain in detail about the different cultivation methods of virus. How are they assayed ? **10**

b) Classify plant viruses giving suitable example. **6**

6. a) Explain in detail the generalized transduction and specialized transduction. **10**

b) Explain economic importance of bacteria in pharmaceutical industry. **6**

7. Answer **any two.** **16**

a) Explain parts of compound microscope with the concept of numerical aperture, focal length and resolution power.
b) Explain the role of heavy metal, oxidizing agents and dyes as a antimicrobial agent.
c) Discuss the generalized structure of a bacteriophage stating its industrial application in biotechnology.

8. Write notes on. **16**

a) Prokaryotic Ribosomes. b) Lyophilization technique.
c) Cultivation of Anaerobic micro-organism. d) Membrane filters.

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