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5857

Your Roll No

B.Sc. (Hons.)/I

J

MICROBIOLOGY – Paper III

(Bacteriology)

(Admissions of 2004 and onwards)

Time 3 Hours

Maximum Marks 60

*(Write your Roll No on the top immediately
on receipt of this question paper)*

Attempt any Five questions

All questions carry equal marks

1 (a) Define the following terms (any six)

- (i) Signature sequences
- (ii) S- Layer
- (iii) Arithmetic growth
- (iv) Chlorosomes
- (v) Mixotrophs
- (vi) Competent cells
- (vii) Dendrogram

(1×6=6)

P T O

- (b) How and when does bacterial sporulation occurs ? (4)
- (c) What is Numerical taxonomy ? (2)
- 2 (a) Write short notes on following (3×3=9)
- (i) Halophiles
 - (ii) Fluorescent Microscopy
 - (iii) Viable count methods
- (b) What are the differences between F^+ , F^- , Hfr and F' cells ? (2)
- (c) Why are mycoplasmas pleomorphic ? (1)
- 3 (a) Justify the following (2×3=6)
- (i) Mac Conkey agar is a selective differential media
 - (ii) Psychrophiles have lipids rich in unsaturated fatty acids
 - (iii) *Dienococcus* are radiation resistant
- (b) What is ribotyping ? (3)
- (c) Give an example of a giant bacteria (1)
- (d) What are transposons ? (2)

- 4 (a) Explain the four phases of bacterial growth in a closed system (4)
- (b) List the differences between cell membranes of eubacteria and archaeobacteria (3)
- (c) What are the differences between generalized and specialized transduction? (3)
- (d) Explain the method of shadow casting (2)
- 5 (a) What are continuous cultures? Differentiate between a chemostat and turbidostat (3)
- (b) Explain the structure and functions of Bacterial Capsule (3)
- (c) What are Molecular Koch's Postulates? (4)
- (d) Name the bacteria
- (i) Containing membrane bound DNA region
- (ii) Containing mycolic acids (2)
- 6 (a) Explain bacterial cell wall structure. Enlist the differences between Gram positive and Gram negative cell walls (4)
- (b) Explain the structure and organization of bacterial flagella (4)

- (c) What are the contributions of Ferdinand Cohn ?
(2)
- (d) Discuss the methods of culturing of strict Anaerobes
(2)