

This question paper contains 4 printed pages]

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S. No. of Question Paper : 8702

Unique Paper Code : 253103

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Name of the Paper : MIHT-102 Bacteriology

Name of the Course : B.Sc. (H) Microbiology (Part I)

Semester : I

Duration : 3 Hours

Maximum Marks : 75

(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) Give an example of each of the following (any ~~ten~~ five) : 1×10=10

- (i) Methanogenic bacteria
- (ii) Enriched medium
- (iii) Acid-fast bacteria
- (iv) Non-photosynthetic sulfur bacteria
- (v) Radiation resistant bacteria
- (vi) Cellulose digesting bacteria
- (vii) Prosthecae Non-budding bacteria
- (viii) Heterocyst producing cyanobacteria

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- (ix) Endospore forming cocci
 - (x) Bacteria containing chlorosomes
 - (xi) Coma-shaped bacteria
 - (xii) Strictly aerobic bacteria
- (b) Give salient features of the genus '*Streptomyces*'.
- (c) Name *two* diseases of humans caused by spirochaetes.
2. (a) What are the various methods used for stocking of pure cultures? Describe any in detail. 2
- (b) Define generation time. Give *one* example each of a bacterium with a short long generation time. What factors influence the generation time bacterium ? 2+2
- (c) Write the significance of the following (any *four*) : 1
- (i) Magnetosomes
 - (ii) Chlorosomes
 - (iii) Carboxysomes
 - (iv) Gas Vacuoles
 - (v) Poly- β -hydroxybutyric acid.
3. Differentiate between the following (any *five*) : 3×
- (i) Selective medium and Enrichment medium
 - (ii) Group A and Group B mureins

- (iii) Eubacterial and Archaeobacterial Membranes
- (iv) Auxotroph and Prototroph
- (v) Phenotype and Genotype
- (vi) Phylogenetic and Phenetic system of classification

4. Write short notes on (any five) :

5×3=

- (i) Bacterial flagella
- (ii) Mycoplasmas
- (iii) Archaeal cell wall
- (iv) Nutritional categories in bacteria
- (v) Cultivation of anaerobic bacteria
- (vi) Numerical Taxonomy

5. (a) Write the disadvantages of pour plate method of culturing.

(b) Discuss the structure and function of bacterial capsule.

(c) Fill in the blanks :

- (i) Peptidoglycan synthesis can be hampered by _____.
- (ii) Sterilization conditions in autoclave are _____ and _____.
- (iii) Cortex is formed in bacterial _____ and is rich in _____.
- (iv) _____ medium can be used for blue-green algae.

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- (v) Full form of SASPs is _____
- (vi) Bacterial flagellar filament is made up of _____ protein.
- (vii) _____ plays an important role in bacterial conjugation.
- (viii) The flagellar arrangement with a tuft of flagella at one end of the cell is known as _____.

6. (a) Discuss the uses and types of bacteriological filters in sterilization.
- (b) How does ribotyping differ from 16 S rRNA sequencing as a taxonomic tool?
- (c) Explain the life cycle of Chlamydiae.
- (d) Make a well labeled diagram of Gram negative bacterial flagella.

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