

This question paper contains 4 printed pages]

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S. No. of Question Paper : 8702

Unique Paper Code : 253103

C

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*) : 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) Prosthecate Non-budding bacteria
 - (viii) Heterocyst producing cyanobacteria

P.T.O.

- (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 one 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 of a 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.

- (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.