

This question paper contains 4 printed pages]

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S.No. of Question Paper : 7857

Unique Paper Code : 2531102

F-1

Name of the Paper : Bacteriology [DC-1.2]

Name of the Course : Bachelor with Honours in Microbiology

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) Fill in the blanks (any *eight*) :

8×1=8

- (i) A bacterium having protein as its capsular material is .....
- (ii) Pili in bacteria are made up of protein called .....
- (iii) The inclusion body responsible for orientation of bacteria in earth's magnetic field is called .....
- (iv) The major component of cortex in bacterial endospore is .....
- (v) The sugar moieties in the peptidoglycan molecule is linked by ..... bond.

P.T.O.

(vi) The conditions for sterilization in an autoclave are .....  
at .....

(vii) An example of radiation resistant bacteria is .....

(viii) The cell wall component responsible for acid fast character of mycobacteria  
is .....

(ix) Crown gall disease is caused by bacterium .....

(b) Why is rRNA suitable for determining relatedness amongst bacterial species ? 4

(c) Why duration of lag phase varies in different bacterial cultures ? 3

2. Write short notes on the following (any *three*) : 3×5=15

(a) Nutritional categories in bacteria

(b) Archaeobacterial cell wall

(c) Structure of Eubacterial flagella

(d) Sterilization by Radiation.

3. (a) Define the following (any *eight*) : 8×1=8

(i) Type strain

(ii) Hyperthermophile

(iii) Generation Time

- (iv) L forms
  - (v) Palisade arrangement
  - (vi) Plasmid
  - (vii) Enriched Medium
  - (viii) Synchronous growth
  - (ix) Braun's Lipoprotein.
- (b) Explain the effect of lysozyme and penicillin on bacterial cell wall. 3
- (c) Give characteristics and ecological importance of Streptomyces. 4
4. (a) Expand the structure and function of capsule. 5
- (b) Describe the methods for the cultivation of anaerobic bacteria. 5
- (c) Name any *two* components of cytoskeleton along with their function. 2
- (d) Make well labelled diagram of Gram positive bacterial cell wall. 3
5. (a) Give significance of the following (any *five*) : 5×2=10
- (i) Pili
  - (ii) Sterols in Mycoplasma
  - (iii) Gas Vacuole

- (iv) Teichoic acid
  - (v) Heterocyst
  - (vi) Bacterial Rhodopsin.
- (b) Diagrammatically explain the formation of endospore in a bacterial cell. 5
6. (a) Differentiate between the following : 4×3=12
- (i) Complex and Synthetic Medium
  - (ii) Twitching and Gliding Motility
  - (iii) Archaeobacterial and eubacterial cell membrane
  - (iv) *Rhizobium* and *Agrobacterium*.
- (b) Name the causative organism of the following diseases (any three) : 3×1=3
- (i) Leprosy
  - (ii) Anthrax
  - (iii) Botulism
  - (iv) Gonorrhoea.