[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1383 **I**

Unique Paper Code : 2532011102

Name of the Paper : Basic Bacteriology

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

Semester : I (UGCF)

Duration : 3 Hours Maximum Marks : 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any **five** questions.
3. **All** questions carry equal marks.

1. Explain the following terms (**any nine**) : (2×9=18)
   (i) Generation time
   (ii) S layer
   (iii) L form
   (iv) VBNC
   (v) Enriched medium
   (vi) Pseudomurein

P.T.O.

(vii) Spheroplast

(viii) Hopanoids

(ix) Porins

(x) Mesosomes

2. (a) Differentiate between the following **(any four)** : (4×4=16)

(i) Spread plate and Pour plate method

(ii) Gram-positive and Gram-negative Cell wall

(iii) Synthetic and Complex media

(iv) Polyphosphate and PHB granules

(v) Archaebacterial and Eubacterial membranes

(b) What are carboxysomes ? (2)

3. (a) Write short notes **(any four)** : (4×4=16)

(i) Asexual reproduction in bacteria

(ii) Patterns of flagella distribution in bacteria

(iii) Cultivation of anaerobic bacteria

(iv) Steps in formation of bacterial endospore

(v) Methods of maintenance and preservation of bacterial cultures

(b) How do plasmids differ from chromosomes ? (2)

4. (a) Give one example of each of the following (**any eight**) : (1×8= 8)

(i) Selective and differential medium

(ii) Bacteria with proteinaceous capsule

(iii) Giant bacteria

(iv) Bacteria harbouring sulphur granules

(v) Magnetotactic bacteria

(vi) Spiral shaped bacteria

(vii) Bacteria containing more than 1 chromosome

(viii) Gram positive rods

(ix) Endospore forming bacteria

(b) Diagrammatically describe the phases of a typical bacterial growth curve. (5)

(c) Discuss the use of enrichment cultures in isolating microbes. (3)

(d) What are the functions of pili? (2)

5. (a) Diagrammatically explain the structure of gram-negative bacterial flagella. (5)

(b) Discuss the different groups of bacteria based on their oxygen requirements citing suitable examples. (5)

(c) What are the functions of a bacterial capsule? (4)

(d) What is the significance of culture collections? Name any two microbial culture collection centres. (4)

6. (a) Give reasons for the following : (3×4=12)

(i) Agar is used as a solidifying agent in culture media.

(ii) Streaking is a dilution process.

(iii) Length of lag phase varies in different bacterial cultures.

(iv) Archaea are insensitive to penicillin.

(b) What are SASPs and what is their function? (3)

(c) How is the composition of bacterial ribosome different from that of eukaryotic ribosome? (3)