(b) Diagrammatically explain the various bacterial morphologies by giving suitable examples.

(c) Explain with the help of a diagram the difference between simple staining and negative staining.

(6,6,3)

(13/5/2022 Mor)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1006 **A**

Unique Paper Code : 32493402

Name of the Paper : Microbial Techniques, SEC

Name of the Course : **B.Sc. (H) Biochemistry (CBCS-LOCF)**

Semester : IV

Duration : 2 Hours Maximum Marks : 50

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **all** the questions.

1. (a) Justify the following statements **(any 4)** :

(i) Prions are harmful to humans

(ii) Pathogenic bacteria are usually gram negative

(iii) Agar-agar is preferred over gelatin as a solidifying agent

(iv) Belief in spontaneous generation is an obstacle to the development of microbiology

(v) Viruses are unique group of infectious agents

(b) Differentiate between the following **(any two)** :

(i) Enveloped and non-enveloped viruses

(ii) Selective and Differential Medium

(iii) Yeast and Mould

(c) Diagrammatically depict the structural features of algal and fungal cell. (10,6,4)

2. (a) Define pure culture. Briefly describe the spread plate method of obtaining a pure culture. On plating 100 1 of a 10^{-8} dilution of a bacterial culture, 21 bacterial colonies were obtained. Calculate the CFU/ml of the undiluted suspension.

OR

Discuss the ways in which viruses may be cultivated. Define the following terms: plaque, cytopathic effect and necrotic lesion.

(b) You are given a mixed sample of *E. coli* and *Lactobacillus*. How will you identify the two species under the microscope? Explain the procedure including the role of each reagent as well as the principle of the technique. (7,8)

3. (a) The Golden Age of Microbiology was one in which many of these researchers made path-breaking discoveries or inventions. Discuss the contributions of each of these scientists :

(i) Loius Pasteur

(ii) Joseph Lister

(iii) Alexander Fleming

OR

Explain briefly the mechanism of action of following sterilent :

(i) Halogens

(ii) Alcohol

(iii) Heavy metals