Roll No. : .....

Total No. of Questions : **16** ] [ Total No. of Printed Pages : **3**

# SEM–1034

## M.Sc. (Ist Semester) Examination, 2022

## MICROBIOLOGY

Paper – FS–MIC–CC–102

### (Microbial Physiology and Biochemistry)

*Time : **3** Hours* ] [ *Maximum Marks : **40***

The question paper contains three Sections.

**Section–A** **(Marks : 1 × 10 = 10)**

***Note*** :– Answer all the *ten* questions carries **1** mark each. The answer should not exceed **50** words.

**Section–B** **(Marks : 3 × 5 = 15)**

***Note*** :– Answer *five* questions by selecting at least *one* question from each Unit. Each question carries **3** marks. Answer should not exceed **200** words.

**Section–C** **(Marks : 5 × 3 = 15)**

***Note*** :– Answer *three* questions by selecting *one* question from each Unit. Each question carries **5** marks. The answer should not exceed **500** words.

## Section–A

1. (i) By which method bacteria multiply ?

   (ii) Define specific growth rate.

   (iii) Define growth optimal temperature of a micro-organism.

   (iv) Fatty acid synthesis takes place in which part of a Eukaryotic cell ?

   (v) What are the common names of the vitamins :

   (a) Pyridoxine

   (b) Riboflavin ?

   (vi) What is the significance of a zero $\Delta G$ value of a biochemical reaction ?

   (vii) Give *two* examples of bacteria which perform an-oxygenic photosynthesis.

   (viii) What are the inorganic forms of iron which can be oxidized by bacteria to gain energy ?

   (ix) How much energy is released by the oxidation of a palmitic acid molecule ?

   (x) What is the significance of Glyoxylate pathway ?

## Section–B

### Unit–I

2. Write a short note on batch culture.

3. Give a diagrammatic description of the effect of pH on microbial growth.

4. Write a short note on various types of bonds which hold a protein in its native conformation.

### Unit–II

5. Describe how triglycerides are formed in an organism.

6. Write an illustrative account on substrate level phosphorylation.

7. Write a note on electron carriers of ETC.

**Unit–III**

8. Write a note on microbial oxidation of hydrogen.

9. Embden Mayer Hoff Parnas pathway.

10. Gluconeogenesis

**Section–C**

**Unit–I**

11. Give a comprehensive account on microbial transport methods.

12. Give a detailed account on enzyme purification methods.

**Unit–II**

13. Write notes on the following :

    (i) Uncouplers of ETC

    (ii) Cyanobacterial photosynthesis

14. Give a comprehensive account on biosynthesis of vitamins.

**Unit–III**

15. Write notes on the following :

    (i) Reverse TCA cycle

    (ii) Pasteur effect

16. Give a detailed account on different types of fermentation processes.