

Roll No. : .....

Total No. of Questions : 16 ]

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# SMIC-119

M.Sc. (Ist Semester) Examination, 2021

## MICROBIOLOGY

Paper - MB-102

(Microbial Physiology and Biochemistry)

Time : 1½ Hours ]

[ Maximum Marks : 40

### Section-A

(Marks : 1 × 10 = 10)

**Note** :- Answer all *ten* questions (Answer limit **50** words). Each question carries 1 mark.

### Section-B

(Marks : 3 × 5 = 15)

**Note** :- Answer any *five* questions by selecting at least *one* question from each Unit (Answer limit **200** words). Each question carries 3 marks.

### Section-C

(Marks : 5 × 3 = 15)

**Note** :- Answer any *three* questions by selecting at least *one* question from each Unit (Answer limit **500** words). Each question carries 5 marks.

### Section-A

1 each

1. Attempt all *ten* questions. Answer should not exceed **50** words in each question.

(i) Explain Maximum Specific Growth Rate.

(ii) Explain Logarithmic Growth Phase in Bacterial Growth Cycle.

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- (iii) What is the broad function of Isomerases ? Give one example of this class of Enzyme.
- (iv) Explain Facilitated Diffusion.
- (v) What do you understand by Saturated Fatty Acid ? Give one example of the same.
- (vi) Define Hormones.
- (vii) Define Entropy.
- (viii) Give *two* examples of Artificial Electron Donors.
- (ix) Does bioluminescence reaction requires oxygen ? (Yes/No)
- (x) Give *two* examples of Iron Oxidizing Bacteria.

**Section-B**

3 each

**Note** :- Answer any *five* questions in about **200** words, by selecting at least *one* question from each Unit. Each question carries **3** marks.

**Unit-I**

- 2. Write a note on Bacterial Growth Curve.
- 3. Explain the role of temperature on Bacterial Growth.
- 4. Write a note on Primary Active Transport.

**Unit-II**

- 5. Write a brief note on synthesis of cell membrane lipids.
- 6. Describe the role of Vitamins as Coenzymes.
- 7. Give an account on the inhibitors of Electron Transport Chain.

**Unit-III**

- 8. Give an illustrative account of Bioluminescence.
- 9. Illustrate Glyoxalate pathway with a labelled diagram.
- 10. Write a note on Pasture Effect.

### Section–C

5 each

**Note** :- Answer any *three* questions in this Section, by selecting at least *one* question from each Unit in about **500** words. Each question carries **5** marks.

#### Unit–I

11. Write short notes on the following :
  - (i) Enzyme Classification
  - (ii) Competitive Enzyme Inhibition
12. Give a comprehensive account on regulation of Enzyme Activity.

#### Unit–II

13. Write short notes on the following :
  - (i) Electron Carriers
  - (ii) Uncouplers of ETC
14. Give a brief outline of synthesis of different amino acids.

#### Unit–III

15. Write short notes on the following :
  - (i) Microbial Oxidation of Sulphur
  - (ii) Entner Doudoroff Pathway
16. Give a comprehensive account on fermentation of carbohydrates with reference to Homolactic and Heterolactic Fermentations.