

Roll No. :

Total No. of Questions : 16]

[Total No. of Printed Pages : 3

EMIC-124

M.Sc. (Ist Semester) Examination Jan., 2023

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.

BRI-963

(1)

EMIC-124 P.T.O.

Section–A

1. (i) Mycelial fungi grow by which method.
- (ii) Give *two* examples of general purpose media used for bacteria growth in a Lab.
- (iii) Give *two* examples of enzymes belonging to Oxidoreductases class.
- (iv) Explain van der Waals forces.
- (v) Give *two* examples of saturated even carbon chain fatty acids, which can be synthesized by bacteria.
- (vi) Which vitamin is the precursor for FMN ?
- (vii) Give *two* examples of compounds which are inhibitors of Complex-III of ETC ?
- (viii) Give *two* examples of sulphur oxidizing bacteria.
- (ix) Pentose sugars are produced by which metabolic pathway.
- (x) Give *two* examples of triglyceride molecules.

Section–B

Unit–I

2. Describe any quantitative method of your choice which can be used to determine microbial growth.
3. Write in brief about symport system of transport used by bacteria.
4. Briefly describe the ultrasonication method used for the isolation of microbial intracellular enzymes.

Unit-II

5. Explain 1st Law of Thermodynamics with a suitable example.
6. Write a note on the bio-synthesis of steroids.
7. Write a note on artificial electron donors.

Unit-III

8. Write a note on microbial oxidation of nitrogen.
9. Write a note on substrate level phosphorylation.
10. Explain Heterolactic fermentation with suitable example of microorganisms doing this process.

Section-C

Unit-I

11. Give a comprehensive account on growth kinetics of batch culture cultivation of bacteria.
12. How is enzyme activity regulated ? Give a detailed account on it.

Unit-II

13. Write notes on the following :
 - (a) Biosynthesis of tryptophane
 - (b) Entropy with respect to a living being
14. Electron transport chain in a Chloroplast.

Unit-III

15. Write notes on the following :
 - (a) Catabolism of proteins
 - (b) Glyoxylate pathway
16. Write notes on the following :
 - (a) Bioluminescence
 - (b) Gluconeogenesis