

Roll No. :

Total No. of Questions : 11]

[Total No. of Printed Pages : 4

BPG-1096

M.Sc. (Previous) Examination, 2021

MICROBIOLOGY

Paper-III

(Microbial Physiology, Biochemistry and Bioinstrumentation)

Time : 1½ Hours]

[Maximum Marks : 75

Section-A

(Marks : 2 × 10 = 20)

Note :- Answer all *ten* questions (Answer limit **50** words). Each question carries **2** marks.

(खण्ड-अ)

(अंक : 2 × 10 = 20)

नोट :- सभी दस प्रश्नों के उत्तर दीजिए (उत्तर-सीमा **50** शब्द)। प्रत्येक प्रश्न **2** अंक का है।

Section-B

(Marks : 5 × 5 = 25)

Note :- Answer all *five* questions. Each question has internal choice (Answer limit **200** words). Each question carries **5** marks.

(खण्ड-ब)

(अंक : 5 × 5 = 25)

नोट :- सभी पाँच प्रश्नों के उत्तर दीजिए। प्रत्येक प्रश्न में विकल्प का चयन कीजिए (उत्तर-सीमा **200** शब्द)। प्रत्येक प्रश्न **5** अंक का है।

Section-C

(Marks : 10 × 3 = 30)

Note :- Answer any *three* questions out of five (Answer limit **500** words). Each question carries **10** marks.

(खण्ड-स)

(अंक : 10 × 3 = 30)

नोट :- पाँच में से किन्हीं **तीन** प्रश्नों के उत्तर दीजिए (उत्तर-सीमा **500** शब्द)। प्रत्येक प्रश्न **10** अंक का है।

BI-768

(1)

BPG-1096 P.T.O.

Section–A

2 each

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

- (i) Draw a labelled diagram of bacterial growth curve.
- (ii) Write the formula used to calculate the doubling time for microbial population.
- (iii) What is the broad function of Transferase ? Give one example of this class of enzyme.
- (iv) Explain Passive Diffusion.
- (v) Give *two* examples of saturate fatty acids.
- (vi) Define Co-enzymes. Give one example of co-enzyme and its function.
- (vii) Explain the importance of Gibbs free energy with respect to biochemical reactions.
- (viii) Oxidation of fatty acids occur via a pathway termed as
- (ix) Which of the following microscopy can be used to determine the three dimensional structure of a bacterial cell ?
 - (a) Bright Field Microscopy
 - (b) Fluorescent Microscopy
 - (c) Phase Contrast Microscopy
 - (d) Dark Field Microscopy
- (x) Write one application of Atomic absorption spectroscopy.

Section–B

5 each

Answer *five* questions selecting *one* question from each Unit. Each question carries **5** marks. Answer of each question should not exceed **200** words.

Unit–I

2. Write a note on growth kinetics of batch culture.

Or

Write a note on active transport.

Unit-II

3. Write a brief note on translation (protein synthesis) in Prokaryotes.

Or

Give an illustrative account on how peptidoglycan is synthesized in bacteria.

Unit-III

4. Write a note on accessory pigments found in photosynthetic organisms.

Or

Briefly explain the Methanogenesis process.

Unit-IV

5. Give an illustrative account of anoxygenic (anerobic) photosynthesis.

Or

Write a note on inhibitors of electron transport chain.

Unit-V

6. Write a note on SEM.

Or

Write a note on isoelectric focusing.

Section-C

10 each

Answer any *three* questions out of five. Each question carries 10 marks. Answer of each question should not exceed **500** words.

7. Write notes on the following :
- (i) Effect of temperature on bacterial growth
 - (ii) Non-competitive enzyme inhibition
8. Write notes on the following :
- (i) Biosynthesis of hormones
 - (ii) Synthesis of mRNA in Eukaryotes

9. Write notes on the following :
- (i) Bacteriochlorophyll
 - (ii) Microbial oxidation of inorganic Iron
10. Give a comprehensive account on oxidative and substrate level phosphorylation with suitable example of each.
11. Write short notes on the following :
- (i) Rate Zonal electrophoresis
 - (ii) Ion Exchange chromatography