Progressive Education Society's
Modern College of Arts, Science & Commerce Ganeshkhind, Pune – 16, NEP 2020
(Autonomous)
End Semester Examination: Nov/Dec 2023

***Total No. of Questions**: 5/31* ***Total No. of Pages**: 2*

First Year (B.Sc.)
COURSE CODE: MIC12101
COURSE NAME: Microbial biochemistry and growth
(Semester II)

Program: B.ScGen03 **Credits:** 4
Program Specific: Microbiology **Time:** 3 Hours
Course Type: DSC **Max. Marks:** 60
Paper: I **SET: A**

Instructions to the candidate:
1) *All questions are compulsory.*
2) *Figures to the right indicate full marks.*
3) *Draw a well labelled diagram wherever necessary.*

SECTION: A

Q1) Answer the following **[1 X 10 =10]**

1. Explain the structure of atom and enlist components present in it.
2. Compare ribose and deoxyribose sugar.
3. Lysine is positively charged amino acid. State true or false.
4. Bacterial cell contains - _ _ _ __ _ _ _ __ ribosome. a)70S b)80S c)90S d) 120S
5. Bacterial chromosomal DNA is a linear DNA. State True /False
6. Summarize role of agar in the bacteriological medium
7. Define chemolithotrophs.
8. Name the growth phase of bacteria having maximum growth rate.
9. The Kjeldal method is used to estimate_ _ _ _ _ _ _ _ from the sample.
   a. carbon b. nitrogen c. oxygen d. potassium
10. Justify: Living hosts are required for virus cultivation.

SECTION: B

Q2) Answer the following (Attempt any 5/7) **[5 X 2 = 10]**

1. Discuss structure of starch.
2. Deduce role of phospholipids in the cell.
3. Cite role of capsules in bacterial cell.
4. Discuss functions of PHB granules.

P.T.O.

5. Explain why bacterial suspension is prepared in saline solution.
6. Summarize direct microscopic methods for enumeration of bacteria from sample. .
7. Give two essential conditions to be considered, while cultivating photosynthetic microbes.

SECTION: C

Q3) Answer the following (Attempt any 5/7) **[5 X 3 = 15]**

1. Justify: Cell membrane regulates transport of molecules.
2. Enlist types of RNA molecules.
3. Describe in brief the egg inoculation technique for cultivation of viruses.
4. Explain role of microbial culture collection centers.
5. Demonstrate role of peptone in bacteriological medium.
6. Diagrammatically explain spread plate method for isolation and enumeration of bacteria.
7. Explain turbidometric method for monitoring bacterial growth.

SECTION: D

Q4) Answer the following (Attempt any 3/5) **[3 X 5 = 15]**

1. Draw structure of bacterial flagella.
2. Illustrate sporulation process in bacteria.
3. Compare chromosomal and extrachromosomal DNA
4. Give classes of microorganisms based on their nutrition.
5. Explain effect of temperature on bacterial growth and classify bacteria on the basis of growth at different temperatures.

SECTION: E

Q5) Answer the following (Attempt any 2/4) **[2 X 5 = 10]**

1. Compare structure of cell wall of different bacteria.
2. Explain the structural levels of proteins.
3. Waste water sample was inoculated on Mac Conkey's medium, showed two types of colonies after 24 hours 1. pink and 2. Yellow. Comment on the type of metabolism in those colonies.
4. Draw growth curve of bacteria and explain different phases present in it.

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