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PG/IS/MCB/101/24

M. Sc. 1st Semester Examination, 2024

MICROBIOLOGY

(*Bacteriology*)

PAPER – MCB-101

Full Marks : 25

Time : 1 hour

Answer **all** questions

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

GROUP – A

Answer any **two** questions from the following : 2×2

1. Write the Oparin-Haldane hypothesis.

2. What is chromoplasm ?

3. Write the endosymbiotic theory.

4. How many origins of replication are found on the chromosomes from bacteria, archaea and eukarya ?

GROUP–B

Answer any **two** questions from the following : 4×2

5. What is Gaidukov Phenomenon ? Describe the cell features of archaebacteria. $2 + 2$

6. Write the Miller and Urey experiment to support the origin of life.

7. Write short note on (any *one*) :
   (*a*) Euryarchaeota
   (*b*) Candidate Phyla Radiation

8. How do metagenomic approaches differ from microbial community analysis such as that based on 16S rRNA gene analysis ?

GROUP – C

Answer any **one** question from the following : 8×1

9. What is FAME analysis ? Why VBNC cells are not regarded as dead cells ? Write the limitations of metagenomics. $2 + 2 + 4$

10. Explain the principles of numerical taxonomy and how it differs from traditional taxonomy. Write the developmental stages of heterocyst. Mention the function of mucilage sheath in cyanobacteria. $2 + 2 + 3 + 1$

[Internal Assessment – 05 Marks]