

M.Sc. (Micro) Semester - 4 (CBCS) Examination
April/May-2022 (OLD COURSE)
MOLECULAR PHYLOGENY AND DIVERSITY(CORE)

Time: 2:30 Hours

Marks: 70

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

Q. 1 Answer the following (any seven out of ten, each of **two** marks) 14

1. What are molecular applications phylogenetic trees?
2. Define Carl Woese's role in molecular biology
3. What is chronometer?
4. Define DGGE and TGGE.
5. Define unique feature of Lactobacilli and Bacilli.
6. Write the important stages of PCR.
7. Define why high G+C content groups are more stable.
8. What is Bergey's Manual? and explain its uses.
9. Give an example of low G+C content organisms.
10. Mention the characteristic of Clostridia.

Q. 2 Answer the following (any two out of three, each of **seven** marks) 14

1. Discuss distinguishing feature of gram-negative bacteria.
2. Write note on beta Proteobacteria.
3. Write short note on Delta Proteobacteria bacteria.

Q.3 (A) Answer the following 14

1. Write a note on PCR and explain the application. [5]
2. Describe molecular methods non-cultivable microbes. [5]
3. Write a note ARDRA. [4]

OR

Q.3 (B) Answer the following (each of **seven** marks) 14

1. Describe nucleic acid hybridization.
2. Discuss the metabolic potential of non-cultivable microbes.

Q.4 (A) Answer the following (any two out of three, each of **five** marks) 10

1. Describe the Low G + C bacteria.
2. Write a note on high G + C bacteria and mention its features.
3. Describe Clostridia and explain molecular physiology.

Q.4 (B) Answer the following (any one out of two) 04

1. Classify the Bacilli based on the physiological characteristics.
2. Write a note on classification system Lactobacilli.

Q.5 Answer the following (any two out of four, each of **seven** marks) 14

1. Explain in detail nucleic acid analysis for microbial diversity.
2. Explain chronometers and chronological distances.
3. Explain three domain universal phylogenetic tree.
4. Discuss methods of 16S rRNA analysis and mention its role in evolutionary study.
