# PG (CBCS) EVEN SEMESTER EXAMINATION, 2023

## LIFE SCIENCE & BIOINFORMATICS

2nd Semester

Course No. : LSCC - 201(O)

**( Microbiology )**

Full Marks : 70

Pass Marks : 28

Time : 3 hours

*The figures in the margin indicate full marks for the questions*

(Answer all questions)

1. Write the theory and methodology of following techniques in microbial taxonomy.
   (a) SSU ribosomal (16S) RNA gene sequencing [7]
   (b) Genotyping methods [7]

OR

2. Explain the following sterilization methods with their pros and cons. [2x7=14]
   (a) Gasses
   (b) Gamma rays

3. Compare and contrast prokaryotes, eukaryotes and archaea. Add a note on evolution of mitochondria and chloroplast. [10+4=14]

OR

4. Write notes on the following: [2x7=14]
   (a) Aerobic vs anaerobic respiration
   (b) Methanogenic bacteria

( Turn Over )



5. Describe the etiology, symptoms and treatment of the following diseases. [2x7=14]
   (a) Tuberculosis
   (b) Late Blight of potato

OR

6. Write notes on the following: [2x7=14]
   (a) Microbial genomes
   (b) Classification of viruses

7. Discuss the adaptations and applications of following extremophiles. [2x7=14]
   (a) Thermophiles
   (b) Halophiles

OR

8. Explain the mode of action of aminoglycoside group of antibiotics with suitable examples and models. Discuss how bacteria resist these antibiotics. [10+4=14]

9. Answer the following:
   (a) What is biogeochemical cycle and its importance? [8]
   (b) How soil fertility is increased by mycorrhizal associations? [6]

OR

10. Answer the following:
   (a) Define xenobiotics? Discuss the mechanism of xenobiotic degradation by microbes. [8]
   (b) With suitable examples discuss the applications of batch and continuous culture. [6]

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