

**KARNATAKA STATE OPEN UNIVERSITY**  
**M.Sc. Microbiology - I Semester**  
**Open Book Examination January 2021**

**Course MB 1.1: Microbiology-Perspectives and Classification**

**Time: 3 Hours**

**Max. Marks: 80**

*Instruction: Answer all the sections.*

**Section A**

Answer any **FOUR** questions from the following:

**4 × 5 = 20**

1. Leeuwenhoek's Microscope
2. Paul Ehrlich.
3. Robert Koch
4. Contributions of Martinus Beijerinck
5. Transduction
6. Myxobacteria

**Section B**

Answer any **THREE** questions from the following:

**3 × 10 = 30**

7. Describe the experiments of Needham to disprove theory of spontaneous generation?
8. Explain Gram staining procedure.
9. Discuss the discovery of the antibiotic penicillin.
10. Give a brief account of different basic and applied branches of microbiology.
11. Explain in detail the concept of "Binomial Nomenclature"

**Section C**

Answer any **TWO** questions from the following:

**2 × 15 = 30**

12. Comment on the early views on the origin of life.
13. Write short notes on the following:
  - a. Mycoplasma
  - b. Nitrifying bacteria
  - c. Cyanobacteria
14. Briefly describe the Bergey's Classification of Bacteria.
15. Give an account of Gram negative Bacteria of Agricultural importance.

-----x-----x-----x-----

**KARNATAKA STATE OPEN UNIVERSITY**  
**M.Sc. Microbiology - I Semester**  
**Open Book Examination January 2021**

**Course MB 1.2: Morphology and Ultrastructure of Bacteria (Prokaryotes)**

**Time: 3 Hours**

**Max. Marks: 80**

*Instruction: Answer all the sections.*

**Section A**

Answer any **FOUR** questions from the following:

**4 × 5 = 20**

1. Extrinsic proteins
2. Gas vacuoles
3. Phycobilisomes
4. Bacterial ribosome
5. Bacterial capsule
6. Sex pili

**Section B**

Answer any **THREE** questions from the following:

**3 × 10 = 30**

7. What are porin proteins? Explain their function.
8. What are the differences between archaea and bacteria?
9. What are the functions of bacterial cell wall?
10. Explain the fluid-mosaic model of the bacterial cell membrane.
11. What are the basic shapes of bacterial cells?

**Section C**

Answer any **TWO** questions from the following:

**2 × 15 = 30**

12. How do you distinguish between Gram negative and Gram positive bacterial cell wall?
13. What are bacterial chromosomes? Discuss their structure and composition.
14. What are bacterial pigments? Explain the different types of pigments.
15. Give an account of different parts of the bacterial flagellum?

-----x-----x-----

**KARNATAKA STATE OPEN UNIVERSITY**

**M.Sc. Microbiology - I Semester**

**Open Book Examination January 2021**

**Course MB 1.3: Bacterial Growth and Physiology**

**Time: 3 Hours**

**Max. Marks: 80**

*Instruction: Answer all the sections.*

**Section A**

Answer any **FOUR** questions from the following:

**4 × 5 = 20**

1. Mixotroph
2. Symbiotic Bacteria
3. Aerotolerant anaerobes
4. Minimal medium
5. Stationary phase
6. Petroff-Hausser Counting Chamber

**Section B**

Answer any **THREE** questions from the following:

**3 × 10 = 30**

7. What are Chemotrophs? How they obtain their energy?
8. Discuss the trace elements essential for a bacterial culture medium.
9. Explain the effect of pressure on bacterial growth.
10. What are extremophiles? Explain the different conditions they live in.
11. How bacteria degrade cellulose?

**Section C**

Answer any **TWO** questions from the following:

**2 × 15 = 30**

12. Discuss the bacterial requirements of pH, temperature and osmotic condition.
13. Explain the design and functioning of a Chemostat.
14. Discuss the influence of culture media on bacterial growth and types of culture media.
15. Write an essay on bacteria which inhabit extreme environmental conditions.

-----X-----X-----X-----

**KARNATAKA STATE OPEN UNIVERSITY**  
**M.Sc. Microbiology - I Semester**  
**Open Book Examination January 2021**  
**Course MB 1.4: Microbial Techniques**

**Time: 3 Hours**

**Max. Marks: 80**

*Instruction: Answer all the sections.*

**Section A**

Answer any **FOUR** questions from the following:

**4 × 5 = 20**

1. Micrometer
2. Confocal microscope
3. Tyndallization
4. Disc diffusion assay
5. Selective medium
6. Sclerotization

**Section B**

Answer any **THREE** questions from the following:

**3 × 10 = 30**

7. Briefly explain the biosafety levels of microorganisms.
8. What are the applications of electron microscope?
9. Define BOD and explain its significance.
10. Briefly explain the procedure of streak plate method.
11. Explain different methods of measurement of growth of microorganisms.

**Section C**

Answer any **TWO** questions from the following

**2 × 15 = 30**

12. Write a detailed essay on different types of microscopes and their applications.
13. What is pasteurization? Explain different types of pasteurization.
14. Describe the principle and functioning of laminar air flows
15. What are the different methods of maintenance of microorganisms?

-----X-----X-----

