

MSc Sem.-1 Examination

402

Life Science

Time : 2-30 Hours]

February-2025

[Max. Marks : 70

Instructions:

All questions are compulsory.

Illustrate your answers with neat diagrams wherever necessary.

Question - 1**Write the following**

- i) Discuss general characteristic of fungi and give its economic importance [07]
- ii) Discuss about germ theory of fermentation [07]

OR

- i) Give a brief account about discovery of Louis Pasteur. [07]
- ii) Write Note on "Achaea" [07]

Question - 2**Write the following**

- i) How has the advent of molecular biology techniques like genomic sequencing impacted the classification of fungi, viruses, and bacteria? Discuss the benefits and challenges associated with these methods. [07]
- ii) Explain the significance of Bergy's Manual in the field of microbiology [07]

OR

- i) Discuss the present status of fungal taxonomy and the methods used to classify fungi. How have molecular techniques impacted fungal classification? [07]
- ii) Describe the methods used in numerical taxonomy, including the use of quantitative data, similarity indices, and cluster analysis. How are these methods applied to classify organisms? [07]

Question - 3**Write the following**

- i) Write a note on *Staphylococcus aureus* [07]
- ii) Define bacteriophage and discuss about T₄ phage with lytic cycle [07]

OR

- i) Write a note on *Escherichia coli* [07]
- ii) Explain about *Puccinia* fungi in detail. [07]

Question - 4**Write the following**

- i) Define Normal Growth Curve of bacteria and explain stationary phase and death phase in detail [07]
- ii) What are the nutrient classification of microorganisms in brief? [07]

OR

- i) Give importance of nutrients uptake by cell and explain group translocation [07]
- ii) Write a brief note on normal growth curve cycle. [07]

(P.T.O)

Question - 5**Attempt any seven****[14]**

- i) Type strain is used for referring to?
- ii) % Similarity (%S) of each strain to every other strain is calculated by which method?
- iii) Which of the following are characteristics of archaeobacteria different from eubacteria?
 - A. methane-producers
 - B. extreme halophiles
 - C. Thermoacidophiles
 - D. methane-producers, extreme halophiles, and thermoacidophiles
- iv) According to Bergey's Manual of Systematic Bacteriology, prokaryotes that lack a cell wall belong to the group?
 - A. Gracilicutes
 - B. Firmicutes
 - C. Tenericutes
 - D. Mendosicutes
- v) The temperature that allows for most rapid growth during a short period of time is known as _____
 - A. Minimum Temperature
 - B. Maximum Temperature
 - C. Optimum Temperature
 - D. Growth Temperature
- vi) What are subspecies and other infra-specific categories in biological classification?
- vii) Who discovered the first antibiotic?
- viii) Define: Epidemiology
- ix) Microaerophilic bacteria require low levels of oxygen for growth.
 - A. True
 - B. False
- x) What is Bacteriophage and give two examples of bacteriophages?
- xi) Give two examples of pathogenic yeast.