

1 SEM FYUGP BTH-M-101
2025

(November-December)

Biotechnology
Paper: BTH-M-101

Introduction of Microbiology

Time: 2 Hours

Total Mark: 45

Pass Marks : 14

(The figures in the right margin indicate full marks of the questions)

1. Choose the correct answer:

1×5=5

- a) Who proposed the germ theory of disease?
i) Joseph Lister ii) Louis Pasteur
iii) Alexander Fleming iv) Paul Ehrlich
- b) Asexual reproduction in fungi usually occurs via _____.
i) Budding and spore formation ii) Gamete formation
iii) Conjugation iv) Fragmentation
- c) The type of symbiotic relationship where both organisms benefit is called ____:
i) Parasitism ii) Mutualism
iii) Commensalism iv) Antibiosis
- d) The logarithmic phase of bacterial growth is characterized by -
i) No growth ii) Death of bacteria
iii) Rapid cell division iv) Sporulation
- e) Sterilization by autoclaving uses:
i) Dry heat ii) Moist heat and pressure
iii) UV light iv) Alcohol

2. Answer any three questions from the followings: 3×3=9
- a) Different between Photolithotrophic Autotroph and Chemolithotrophic Autotroph. 3
 - b) Write an short note on lichen and mycorrhiza. 3
 - c) Write a note on protozoa as disease-causing agents. 3
 - d) Write a short note on aerobic and anaerobic microbes. 3
 - e) Differentiate between autotrophs and heterotrophs. 3
3. Write explanatory notes on the following questions (any five): 5×5=25
- a) Explain the process of conjugation in bacteria with diagram. 5
 - b) Explain in detail the lytic and lysogenic cycles of viral reproduction with diagram. 5
 - c) Explain the different types of host-microbe interactions with examples. 5
 - d) Discuss in detail the various physical and chemical sterilization methods used in microbiology. 5
 - e) Discuss in detail the antibiotics and antimicrobial agents used to control microorganisms. 5
 - f) Explain how Gram-positive and Gram-negative bacteria can be identified using Gram staining. 5
 - g) Describe the main morphological types of bacteria 5
4. Discuss the factors affecting bacterial growth. 6

Or/অথবা

Discuss in detail the different nutritional types in microorganisms. Explain the classification based on energy source, electron source and carbon source. Give examples of each type of microbe. 6
