

ASSIGNMENT - 1
M.Sc. DEGREE EXAMINATIONS, DECEMBER -2025

Second Semester

MICROBIOLOGY
PAPER – I - MICROBIAL PHYSIOLOGY AND METABOLISM

MAXIMUM MARKS: 30
ANSWER ALL QUESTIONS

1. Give an account on oxidation – reduction reactions.
2. Explain the types of solute transport mechanisms.
3. Write an account on anoxygenic photosynthesis.
4. Describe the photosynthetic pigments and photochemistry of photosystems.
5. Give an account on hydrogen and ammonia oxidizing bacteria.\

ASSIGNMENT - 2
M.Sc. DEGREE EXAMINATIONS, DECEMBER -2025

Second Semester

MICROBIOLOGY
PAPER – I - MICROBIAL PHYSIOLOGY AND METABOLISM

MAXIMUM MARKS: 30
ANSWER ALL QUESTIONS

1. Explain the ETC in bacteria and mitochondria and ETC inhibitors.
2. Write an account on propionate and butyrate-butanol fermentations and their significance.
3. Describe the syntrophy and anaerobic food chain with suitable examples.
4. Give an account on synthesis and degradation of fatty acids.
5. Discuss the biochemistry of N₂ fixation.

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MICROBIOLOGY

PAPER – II - MICROBIAL GENETICS AND MOLEUCLAR BIOLOGY

MAXIMUM MARKS: 30
ANSWER ALL QUESTIONS

1. Give an account on the types of plasmids and their significance.
2. Explain the types of mutations with suitable examples.
3. Give an account on different gene transfer techniques and their applications.
4. Write an account on types lysogenic life cycle and genome organization of λ -phage.
5. Write an account on DNA damage repair mechanisms.

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MICROBIOLOGY

PAPER – II - MICROBIAL GENETICS AND MOLEUCLAR BIOLOGY

MAXIMUM MARKS: 30
ANSWER ALL QUESTIONS

1. Describe the post transcriptional changes and post translational modification of polypeptide.
2. Write an account on repression and attenuation regulation of trp operon in *E. coli*.
3. Explain the different nod genes, their functions and regulation.
4. Explain the different transposable elements in bacteria.
5. Describe the mating type switching mechanism in yeast.

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MICROBIOLOGY

PAPER – III - IMMUNOLOGY

MAXIMUM MARKS: 30
ANSWER ALL QUESTIONS

1. Give an account on secondary lymphoid organs and their importance in immunity.
2. Explain the different types of immunity with suitable examples.
3. Write an account on complement pathways activation and its biological sequences.
4. Describe the different antigen-antibody reactions with suitable examples.
5. Give an account on cell mediated hypersensitivity reaction and associated diseases.

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MICROBIOLOGY

PAPER – III - IMMUNOLOGY

MAXIMUM MARKS: 30
ANSWER ALL QUESTIONS

1. Explain in detail about the diseases caused due to different hypersensitivity reactions.
2. Write an account on concept, tissue typing methods and role of HLA in transplantation immunology.
3. Describe the nature of Rheumatoid arthritis and its therapy.
4. Give an account on immune responses to viral and protozoan diseases.
5. Describe the DNA and recombinant vector vaccines and their applications.

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MICROBIOLOGY

PAPER – IV - AGRICULTURAL MICROBIOLOGY

MAXIMUM MARKS: 30
ANSWER ALL QUESTIONS

1. Explain about the root exudates and its significance.
2. Give an account on phyllosphere microflora and their importance.
3. Write an account on the role of different bacterial bio-fertilizers in nitrogen fixation.
4. Describe the development, structure and functions of legume root nodules.
5. Give an account on symptoms caused by plant pathogenic bacteria and viruses.

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MICROBIOLOGY

PAPER – IV - AGRICULTURAL MICROBIOLOGY

MAXIMUM MARKS: 30
ANSWER ALL QUESTIONS

1. Explain about the causative agent, symptomology and control of grain smut disease of sorghum.
2. Write an account on cultural practices and chemical methods of plant disease control.
3. Give detailed information on Biopesticides as plant disease controlling agents.
4. Give an account on Students 't' test and Chi-square test with suitable biological examples.
5. Describe in brief about one-way and two-way analysis of variance and their importance.