

(DMB 01)

M.Sc. DEGREE EXAMINATION,
NOVEMBER 2021.

First Year

Micro-biology

INTRODUCTION MICROORGANISMS

Time : Three hours

Maximum : 70 marks

SECTION A — (5 × 6 = 30 marks)

Answer any FIVE of the following.

1. Contributions of Robert Koch.
2. Germ theory of diseases.
3. Characters of Archaeobacteria.
4. Rhizobium.
5. Replication of HIV.
6. Prions.
7. Fungi classification.
8. Reproduction in Microalgae.

SECTION B — (4 × 10 = 40 marks)

Answer ALL questions.

9. (a) Describe the historical development of Microbiology.

Or

- (b) Compare between Prokaryotic and Eukaryotic cell.

10. (a) Write an account on the major characters used in the classification of bacterial taxonomy.

Or

- (b) Describe the classification and general characters of Cyanobacteria.

11. (a) Describe the methods of transmission of viruses.

Or

- (b) Describe the Ultra structure and multiplication of TMV.

12. (a) Describe the structure and economic importance of Microalgae.

Or

- (b) Describe the structure and reproduction and significance of Protozoa.

(DMB 02)

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Micro-Biology

MICROBIOLOGICAL METHODS

Time : Three hours

Maximum : 70 marks

SECTION A — (5 × 6 = 30 marks)

Answer any FIVE of the following.

1. Negative staining
2. Principles and applications of Dark Field Microscopy
3. Contrast slide technique
4. Winogradsky column
5. Isolation of Viruses
6. Paper chromatography
7. Isoelectric focussing
8. GM Counter

SECTION B — (4 × 10 = 40 marks)

Answer ALL questions.

9. (a) Describe the principle, methodology and applications of TEM.

Or

(b) Describe the physical and chemical methods of sterilization.

10. (a) Describe the methods anaerobic culturing of Bacteria.

Or

(b) Explain the maintenance and preservation of microbial cultures.

11. (a) Describe the differential and density gradient techniques of Centrifugation.

Or

(b) Describe the principle, methodology and applications of GLC.

12. (a) Describe the principle, methodology and applications of Visible Spectrophotometry.

Or

(b) Describe the two dimensional and Pulse field electrophoresis.

(DMB 03)

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Micro-Biology

MICROBIAL PHYSIOLOGY AND BIOCHEMISTRY

Time : Three hours

Maximum : 70 marks

SECTION A — (5 × 6 = 30 marks)

Answer any FIVE of the following.

1. Continuous cultures
2. Measurement of cell number
3. Nitrogen oxidizers
4. Sulphur oxidizers
5. HMP pathway
6. Glycolysis
7. Nature of enzymes
8. Structure of Purines

SECTION B — (4 × 10 = 40 marks)

Answer ALL questions.

9. (a) Write an account on the nutrient transport in Bacteria.

Or

(b) Describe the factors affecting bacterial growth.

10. (a) Describe the process of photosynthesis in Cyanobacteria.

Or

(b) Write an account on Chemoautotrophy and its significance.

11. (a) Describe the different types of Phosphorylations.

Or

(b) Write an account on Lactate fermentations and their significance.

12. (a) Explain the Regulation of enzyme activity.

Or

(b) Describe the structure and functions of DNA.

(DMB 04)

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Micro-Biology

ENVIRONMENTAL AND AGRICULTURAL MICROBIOLOGY

Time : Three hours

Maximum : 70 marks

SECTION A — (5 × 6 = 30 marks)

Answer any FIVE of the following.

1. Air sampling techniques
2. Seasonal diurnal periodicity of air spora
3. Components of soil
4. Soil environment
5. Symbiotic nitrogen fixers
6. Importance of VAM fungi
7. Concept of disease in plants
8. Black stem rust of wheat

SECTION B — (4 × 10 = 40 marks)

Answer ALL questions.

9. (a) Enumerate Aerobiology in relation to plant pathology.
Or
(b) Describe the various methods of treatments of Sewage water and sludge.
10. (a) Explain the diversity and abundance of dominant soil microorganisms.
Or
(b) Write an account on the transformation of Phosphorus and Iron in soil.
11. (a) Describe the development, structure and functions of Legume Root nodules.
Or
(b) Write an account on the plant growth promoting Rhizobacteria.
12. (a) Describe the Biological control of plant diseases.
Or
(b) Describe the symptomatology, etiology, epidemiology and control of Blast of Rice.
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