

Dr. V. S. KRISHNA GOVT. DEGREE COLLEGE (AUTONOMOUS)

MADDILAPALEM, VISAKHAPATNAM

B.Sc. MICROBIOLOGY (CBCS) FIRST YEAR

SEMESTER – I (W.E.F. 2021-22)

COURSE 1 – INTRODUCTION TO MICROBIOLOGY AND MICROBIAL DIVERSITY

Model Paper

Max Marks: 75

Time: 3 hours

SECTION – A

Answer All the questions (Draw diagram wherever necessary)

5 X 10 M = 50 M

1.a) Write an account on the contributions of Louis Pasteur and Robert Koch.

Or

1.b) Discuss the importance and applications of Microbiology in food and medicine.

2. a) Explain the principle and applications of moist heat sterilization.

Or

2. b) Discuss briefly the principle and procedure of Gram staining method.

3. a) Discuss the methods for isolation of pure cultures.

Or

3. b) Elaborate on different nutritional types of bacteria.

4. a) Discuss different phases of bacteria growth with the help of a growth curve.

Or

4. b) Write an account on direct methods of measurement of microbial growth.

5. a) Give a detailed account of ultra structure of prokaryotic cell with a diagram.

Or

5. b) Write about structural morphology, replication and life cycle of HIV.

SECTION –B

Answer any FIVE questions (Draw the diagrams wherever necessary)

5 x 5 = 25 M

6. Edward Jenner
7. Five kingdom classification
8. Chemical methods of sterilization
9. Dark field microscope
10. Enriched, Selective and Differential media
11. Lyophilization
12. Physical factors that affect microbial growth
13. Mycoplasma

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COURSE - 1 INTRODUCTION TO MICROBIOLOGY AND MICROBIAL DIVERSITY

BLUE PRINT FOR QUESTION PAPER SETTER

Units	10 M Questions	5 M Questions	Marks allotted to the Unit
Unit 1	2	2	30
Unit 2	2	1	25
Unit 3	2	1	25
Unit 4	2	2	30
Unit 5	2	2	30
Total No. of Questions	10	08	140

Note:

1. The question paper setter are requested to kindly adhere to the format given in the above table.
2. The question paper setter are also requested to set the questions in the following way:
 - a. 70 % of questions – Remembering and Understanding type questions
 - b. 30 % of questions – Applying, Evaluating, Analyzing and Creating type questions

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B.Sc. MICROBIOLOGY (CBCS) FIRST YEAR; SEMESTER – II (W.E.F. 2021-22)

COURSE 2 – MICROBIAL PHYSIOLOGY AND BIOCHEMISTRY

Model Paper

Max Marks: 75

Time: 3 hours

SECTION –A

Answer ALL questions (Draw the diagrams wherever necessary) (5 x 10 = 50 M)

1. a) Discuss the properties, classification and functions of Carbohydrates.

Or

1. b) Discuss about properties, classification and functions of lipids.

2. a) Write an account on different levels of protein structure. Add a note of protein functions.

Or

2. b) Discuss the Watson & Crick DNA structure and write functions of DNA.

3. a) Discuss the role of various factors that affect the enzymatic activity.

Or

3. b) Explain the different modes of inhibition of enzyme activity.

4. a) Write about glycolysis pathway and its importance in energy generation.

Or

4. b) Write about TCA cycle and its importance to living organisms.

5. a) Discuss the process and types of fermentation.

Or

5. b) Discuss the mechanism of oxygenic photosynthesis.

SECTION –B

Answer any FIVE questions (Draw the diagrams wherever necessary)

5 x 5 = 25 M

6. Polysaccharides
7. Cholesterol
8. Amino acids
9. Forms of DNA
10. Lock and key hypothesis of Enzyme activity
11. Different classes of enzymes
12. Gluconeogenesis
13. Anoxygenic photosynthesis

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COURSE 2 – MICROBIAL PHYSIOLOGY AND BIOCHEMISTRY

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B.Sc. MICROBIOLOGY (CBCS) SECOND YEAR

SEMESTER – III (W.E.F. 2021-22)

COURSE 3 – MOLECULAR BIOLOGY AND MICROBIAL GENETICS

Model Paper

Max Marks: 75

Time: 3 hours

SECTION –A

Answer ALL questions (Draw the diagrams wherever necessary) (5 x 10 = 50 M)

1.a) Explain the Structure and organization of prokaryotic DNA.

Or

1.b) Write about the Enzymes and proteins involved in DNA replication.

2. a) Discuss the mechanism of transcription in prokaryotes.

Or

2. b) Discuss the mechanism of translation in prokaryotes.

3. a) Discuss the Physical and chemical mutagens.

Or

3. b) Explain the outlines of DNA damage and repair.

4. a) Describe various methods of genetic recombination in bacteria.

Or

4. b) Write about the One gene one enzyme and one gene one polypeptide hypothesis.

5. a) Write about different types of genes and their roles.

Or

5. b) Discuss the regulation of gene expression by lac operon.

SECTION –B

Answer any FIVE questions (Draw the diagrams wherever necessary)

5 x 5 = 25 M

6. Transposons
7. Nucleosomes and chromatin
8. Structure of t-RNA
9. Genetic code and its properties
10. Point mutations
11. Chromosomal mutations
12. Concept of gene and cistron
13. Repressible operons

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B.Sc. MICROBIOLOGY (CBCS) SECOND YEAR; SEMESTER – III (W.E.F. 2021-22)

COURSE 3 – MOLECULAR BIOLOGY AND MICROBIAL GENETICS

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B.Sc. MICROBIOLOGY (CBCS) SECOND YEAR; SEMESTER – IV (W.E.F. 2021-22)

COURSE 4 – IMMUNOLOGY & MEDICAL MICROBIOLOGY

Model Paper

Max Marks: 75

Time: 3 hours

SECTION –A

Answer ALL questions (Draw the diagrams wherever necessary) (5 x 10 = 50 M)

1. a) Write a brief account of primary lymphoid organs of immune system.

Or

1. b) Discuss about various cells of immune system with their functions.

2. a) Explain the procedure for production of monoclonal antibodies and their applications.

Or

2. b) Discuss different types of Antigen – Antibody reactions.

3. a) Discuss about biochemical methods of identification of microbial pathogens.

Or

3. b) Explain the different molecular techniques used in identification of microbial pathogens.

4. a) Write about causative agent, symptoms, diagnosis and control of tuberculosis.

Or

4. b) Write about causative agent, symptoms, diagnosis and treatment of HIV.

5. a) Discuss about different tests for determining antibiotic susceptibility.

Or

5. b) Write about properties and mode of action of different classes of antibacterial agents.

SECTION –B

Answer any FIVE questions (Draw the diagrams wherever necessary)

5 x 5 = 25 M

6. Humoral immunity
7. T-Lymphocytes
8. Antibody – types, properties and functions
9. Types of hypersensitivity
10. Virulence mechanisms
11. Pathogen, pathogenicity and invasion mechanisms
12. Malarial symptoms and control methods
13. Recombinant vaccines

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COURSE 4 – IMMUNOLOGY & MEDICAL MICROBIOLOGY

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B.Sc. MICROBIOLOGY (CBCS) FINAL YEAR; SEMESTER – V/VI (W.E.F. 2021-22)

COURSE- 6A AGRICULTURAL AND ENVIRONMENTAL MICROBIOLOGY

Model Paper

Max Marks: 75

Time: 3 hours

SECTION –A

Answer ALL questions (Draw the diagrams wherever necessary) (5 x 10 = 50 M)

1. a) Write about the biological nitrogen fixation.

(Or)

1. b) Write about the applications of Ectomycorrhiza and VAM.

2. a) Explain the plant – microbial interactions with examples.

(Or)

2. b) Write about the beneficial microorganisms in Agriculture.

3. a) Write about the various microbial diseases of Plants.

(Or)

3. b) Explain the symptoms of plant diseases caused by fungi and bacteria.

4. a) Write about the microflora of the Aquatic Environment.

(Or)

4. b) Explain the Nitrogen cycling in the atmosphere.

5. a) Write about the various steps in sewage treatment methods in detail.

(Or)

5. b) Write about the treatment of drinking water.

SECTION –B

Answer any FIVE questions (Draw the diagrams wherever necessary)

5 x 5 = 25 M

6. Microbial groups in soil
7. Microbes in composting
8. Microbial insecticides
9. Tomato leaf curl – symptoms and pathogen control
10. Soil profile
11. Phosphorus cycle
12. Landfill
13. BOD

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COURSE - 6A AGRICULTURAL AND ENVIRONMENTAL MICROBIOLOGY

BLUE PRINT FOR QUESTION PAPER SETTER

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COURSE-7A: CLINICAL MICROBIOLOGY

Model Paper

Max Marks: 75M

Time: 3 hours

PART – A

Answer **ALL** the questions. Each question carries 10 Marks:

(5 x 10 = 50 Marks)

1 a). Write about the frequency of occurrence of a disease.

(OR)

1 b) Explain the various process of transmission of disease.

2 a) Discuss the pathogenesis, etiology & laboratory diagnosis of Cholera.

(OR)

2 b) Discuss the pathogenesis, etiology & laboratory diagnosis of Pneumonia.

3 a) Explain the IMViC test in detail.

(OR)

3 b) Write down the methods for qualitative determination of antibiotic sensitivity.

4 a) Explain the principle, procedure, and applications of ELISA.

(OR)

4 b) Discuss the methods for observation of blood cells.

5 a) Discuss the blood grouping and WIDAL test illumination reactions. about methods of
Determination of antibiotic sensitivity.

(OR)

5 b) Explain the principle, procedure and applications of ELISA.

PART – B

Answer any **FIVE** questions. Each question carries 4 Marks:

(5 x 5 = 25 Marks)

6. Herd immunity
7. Portals of exit
8. UTI
9. Bacteremia
10. Sugar fermentation tests
11. BT & CT
12. Western blot
13. E-test

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COURSE-7A: CLINICAL MICROBIOLOGY

BLUE PRINT FOR QUESTION PAPER SETTER

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