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

MADDILAPALEM, VISAKHAPATNAM

B.Sc. MICROBIOLOGY (CBCS) FIRST YEAR

SEMESTER – I (W.E.F. 2022-23)

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 the ultrastructure 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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SEMESTER – I (W.E.F. 2022-23)

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	2	30
Unit 3	2	2	30
Unit 4	2	1	25
Unit 5	2	1	25
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

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

MADDILAPALEM, VISAKHAPATNAM

B.Sc. MICROBIOLOGY (CBCS) FIRST YEAR; SEMESTER – II (W.E.F. 2022-23)

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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MADDILAPALEM, VISAKHAPATNAM

B.Sc. MICROBIOLOGY (CBCS) FIRST YEAR; SEMESTER – II (W.E.F. 2022-23)

COURSE 2 – MICROBIAL PHYSIOLOGY AND BIOCHEMISTRY

BLUE PRINT FOR QUESTION PAPER SETTER

Units	10 M Questions	5 M Questions	Marks allotted to the Unit
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Unit 3	2	2	30
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MADDILAPALEM, VISAKHAPATNAM

B.Sc. MICROBIOLOGY (CBCS) SECOND YEAR

SEMESTER – III (W.E.F. 2022-23)

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

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

MADDILAPALEM, VISAKHAPATNAM

B.Sc. MICROBIOLOGY (CBCS) SECOND YEAR

SEMESTER – III (W.E.F. 2022-23)

COURSE 3 – MOLECULAR BIOLOGY AND MICROBIAL GENETICS

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	2	30
Unit 3	2	2	30
Unit 4	2	1	25
Unit 5	2	1	25
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MADDILAPALEM, VISAKHAPATNAM

B.Sc. MICROBIOLOGY (CBCS) SECOND YEAR; SEMESTER – IV (W.E.F. 2022-23)

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 the 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

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

MADDILAPALEM, VISAKHAPATNAM

B.Sc. MICROBIOLOGY (CBCS) SECOND YEAR; SEMESTER – IV (W.E.F. 2022-23)

COURSE 4 – IMMUNOLOGY & MEDICAL MICROBIOLOGY

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	2	30
Unit 3	2	2	30
Unit 4	2	1	25
Unit 5	2	1	25
Total No. of Questions	10	08	140

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

MADDILAPALEM, VISAKHAPATNAM

B.Sc. MICROBIOLOGY (CBCS) (W.E.F 2022 - 23)

SECOND YEAR – SEMESTER – IV

COURSE-5 FOOD AND INDUSTRIAL MICROBIOLOGY

Model Paper

Max Marks: 75M **Time: 3 hours**

PART – A

Answer all the questions (Draw the diagrams wherever necessary) [5 X 10 = 50M]

1 a) Write about the Microbial spoilage of Fruits, Meat and Milk.

(OR)

1 b) Write a note on Salmonellosis & its detection.

2 a) Write about the Fermented Dairy foods.

(OR)

2 b) Write about the Probiotics & their benefits.

3 a) Write about the Industrial applications of *Aspergillus niger*& yeasts.

(OR)

3 b) Explain the isolation and screening techniques for isolating industrial microorganisms.

4 a) Discuss the various types of fermentations (solid and liquid state).

(OR)

4 b) Explain the steps in downstream processing of industrial products.

5 a) Write about the industrial applications of microorganism in detergents and textile industry.

(OR)

5 b) Write about the Industrial production of Ethyl alcohol and vitamin B-12.

PART – B

Answer any **Five** questions from the following[5 X 5 = 25 M]

6. Botulism

7. Chemical methodsof food preservation.

8. Single cell proteins (SCP)

9. Actinomycetes

10. Secondary metabolites

11. Fermentation media

12. Citric acid production

13. Amylase production

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B.Sc. MICROBIOLOGY (CBCS) (W.E.F 2022 – 23)

SECOND YEAR – SEMESTER – IV

COURSE – 5: FOOD AND INDUSTRIAL MICROBIOLOGY

BLUE PRINT FOR QUESTION PAPER SETTER

Units	8 M Questions	4 M Questions	Marks allotted to the Unit
Unit 1	2	1	25
Unit 2	2	2	30
Unit 3	2	2	30
Unit 4	2	1	25
Unit 5	2	2	30
Total No. of Questions	10	08	140

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

MADDILAPALEM, VISAKHAPATNAM

B.Sc. MICROBIOLOGY (CBCS) FINAL YEAR; SEMESTER – V/VI (W.E.F. 2022-23)

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 – microbialinteractions with examples.

(Or)

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

3. a) Write about the various microbial diseases ofPlants.

(Or)

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

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

(Or)

4. b) Explain the Nitrogen cycling in atmosphere.

5. a) Write about the various steps in sewage treatment method 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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B.Sc. MICROBIOLOGY (CBCS) FINAL YEAR; SEMESTER – V/VI (W.E.F. 2022-23)

COURSE - 6A AGRICULTURAL AND ENVIRONMENTAL MICROBIOLOGY

BLUE PRINT FOR QUESTION PAPER SETTER

Units	10 M Questions	5 M Questions	Marks allotted to the Unit
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Unit 2	2	1	25
Unit 3	2	1	25
Unit 4	2	2	30
Unit 5	2	2	30
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B. Sc. MICROBIOLOGY (CBCS) FINAL YEAR, SEMESTER – V/VI (W.E.F. 2022-23)

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 ELSIA.

(OR)

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

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

(OR)

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

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. Bacteraemia

10. Sugar fermentation tests

11. BT & CT

12. Western blot

13. E-test

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MADDILAPALEM, VISAKHAPATNAM

B. Sc. MICROBIOLOGY (CBCS) FINAL YEAR, SEMESTER – V/VI (W.E.F. 2022-23)

COURSE-7A: CLINICAL MICROBIOLOGY

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	2	30
Unit 3	2	2	30
Unit 4	2	1	25
Unit 5	2	1	25
Total No. of Questions	10	8	140

Note:

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