D–7646

Sub. Code
36411

DISTANCE EDUCATION

M.Sc. (Microbiology) DEGREE EXAMINATION,
DECEMBER 2022.

First Semester

GENERAL MICROBIOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Cal woese
2. Robert Koch
3. Alexander Fleming
4. Dark field Microscope
5. Fluorescent Microscope
6. Micrometry
7. Pili
8. Cyanobacteria
9. Lichens
10. Viriods

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Write an account on Scope of Microbiology.

Or

(b) Explain the Contributions of Louis Pasteur.

12. (a) Differentiate between Bright field and Dark field Microscope.

Or

(b) Describe the Principle and applications of Scanning Electron Microscope.

13. (a) Write a short note on Physical Methods of Sterilization.

Or

(b) Discuss about Pure culture technique.

14. (a) Give a brief account on Protozoa.

Or

(b) Explain the biological importance of algae.

15. (a) Give a brief account on Lichens with suitable diagram.

Or

(b) Narrate the general characteristics of Viruses.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Elaborate on the classification of bacteria according to Bergey's manual.

17. Describe the principle and application of the Transmission Electron Microscope.

18. Explain the Prokaryotes cell organelles with structure and function.

19. Give a detailed account on general characteristics of microalgae.

20. Describe the types of the envelope and their composition of viruses.

———————

D–7647

Sub. Code
36412

DISTANCE EDUCATION

M.Sc. (Microbiology) DEGREE EXAMINATION,
DECEMBER 2022.

First Semester

Microbiology

MICROBIAL BIOCHEMISTRY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. Agar-agar
2. Amino acid
3. Glyoxylate cycle
4. Fatty acid
5. Phospholipid
6. Purine
7. Co-Enzyme
8. Bacteriochlorophyll
9. Pencillin
10. Aflatoxin

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Write an account on physical properties of amino acid.

Or

(b) Explain the Kreb's cycle.

12. (a) Write a short note on synthesis of cholesterol.

Or

(b) Describe about degradation of purines and pyrimidines.

13. (a) Give a brief account on types of classification of Lipids.

Or

(b) Give a brief note on structure of Nucleic acids.

14. (a) Write a short note on properties of enzyme.

Or

(b) Discuss about Michaelis — Menton hypothesis.

15. (a) Explain the Botulinum toxin.

Or

(b) Explain briefly about vitamins as Co-factors.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Elaborate the metabolism and its regulation of Gluconeogenesis.

17. Describe about biosynthesis of amino acid.

18. Give a detailed account on Nucleic acids.

19. Write a detailed account on classification of enzyme.

20. What is Antibiotics? Explain the classification based upon mode of action.

———————

D–7648

Sub. Code
36413

DISTANCE EDUCATION

M.Sc.,(Microbiology) DEGREE EXAMINATION,
DECEMBER 2022.

First Semester

MICROBIAL PHYSIOLOGY

(CBCS –2018 – 19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Nutrition

2. Acetogens

3. Photolysis

4. Osmoregulation

5. Ammonification

6. Free-living bacteria

7. TCA Cycle

8. Green sulphur bacteria

9. Entropy

10. QS

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Write an account on batch culture.

Or

(b) Explain about methanogenesis.

12. (a) Differentiate between oxygenic and anoxygenic photosynthesis.

Or

(b) Describe about nutrient stress and starvation stress.

13. (a) Write a short note on photosynthetic pigments.

Or

(b) Discuss about Nitrogenase enzyme.

14. (a) Give a brief account on aerobic respiration.

Or

(b) Explain the mechanism of oxidative phosphorylation.

15. (a) Give a brief account on Bioenergentics.

Or

(b) Write a short note on osmosis.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Write a detailed account on nutritional types.

17. Describe about the photosynthesis.

18. Outline the mechanism of anaerobic respiration.

19. Describe-Genetics and regulation of N_2 fixation.

20. Describe the mechanism of quorum sensing.

———————

D–7649

Sub. Code
36421

DISTANCE EDUCATION

M.Sc. (Microbiology) DEGREE EXAMINATION,
DECEMBER 2022.

Second Semester

MICROBIAL GENETICS

(CBCS 2018-2019 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Physical mutagens

2. DNA alkylation

3. Mismatch repair

4. Structure of F-factor

5. Gene linkage

6. Arabinose operon

7. F-plasmid

8. Sex factors

9. Tn3

10. Integrons

PART B — (5 × 5 = 25 marks)

Answer ALL questions. Choosing either (a) or (b).

11. (a) Describe mutagenesis.

Or

(b) Write short notes on nucleotide excision repair.

12. (a) Write a short note on transformation.

Or

(b) Discuss the process of transduction.

13. (a) Write a brief note on the regulation of bacterial gene expression.

Or

(b) Write an account on the Agrobacterium Ti plasmid.

14. (a) Write in brief about the detection and purification of plasmid DNA.

Or

(b) Explain the replication of plasmid.

15. (a) Write short notes on bacteriophage Tn7 and Mu.

Or

(b) Describe transposable elements.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain DNA damages and repair pathways.

17. Write a detailed account of the process of recombination.

18. Describe the mechanism of transposition in detail with appropriate examples.

19. Discuss in detail about the molecular basis of epigenetics.

20. Elaborate on the steps involved in the detection and purification of plasmid DNA.

———————

D–7650

Sub. Code
36422

DISTANCE EDUCATION

M.Sc. (Microbiology)DEGREE EXAMINATION,
DECEMBER 2022.

Second Semester

MOLECULAR BIOLOGY AND rDNA TECHNOLOGY

(CBCS 2018-19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Nucleotides

2. Helicase

3. Replication fork

4. Transcription factors

5. Adenovirus vector

6. Cosmids

7. Sticky ends

8. PCR

9. Microinjection

10. Ti plasmid

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Write in brief about DNA Polymerase and its types.

Or

(b) Explain the structure of tRNA.

12. (a) Describe RNA processing.

Or

(b) Define: plasmids, cosmids, and phasmids.

13. (a) Write on the cloning of human insulin.

Or

(b) Explain Western blotting.

14. (a) Give brief notes on RAPD and RFLP.

Or

(b) Write about gene silencing.

15. (a) Describe microinjection.

Or

(b) Give short notes on automated sequencing.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Elaborate on the molecular basis of DNA as genetic material.

17. Explain the process of the reverse transcription.

18. Describe the methods involved in the development of the recombinant vaccine.

19. Explain in detail the DNA sequencing methods.

20. Describe the various gene transfer methods.

———————

D–7651

Sub. Code
36423

DISTANCE EDUCATION

M.Sc. (Microbiology) DEGREE EXAMINATION,
DECEMBER 2022.

Second Semester

FOOD AND DAIRY MICROBIOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. pH.

2. Food.

3. Spoilage.

4. Canning.

5. Yogurt.

6. Cheese.

7. Food fermentation.

8. Lipases.

9. Quality control.

10. AGMARK.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Write a short note on redox potential.

Or

(b) Briefly explain about antimicrobial barriers.

12. (a) Discuss briefly about the contamination and spoilage of fruits.

Or

(b) Describe about food poisoning.

13. (a) Write a brief note on fungal toxins.

Or

(b) Give a brief account on milk and milk products.

14. (a) Write a short note on SCP.

Or

(b) Explain about the Oriental foods.

15. (a) Write about the procedure involved in milk testing.

Or

(b) Explain briefly about PFA.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Give an account on Relative humidity.

17. Write in detail about bacterial and viral toxins.

18. Describe in detail about the industrial production of glucose isomerase.

19. Discuss in detail about the food fermentation.

20. What is food law? Elaborate on its quality control.

———————

D–7652	Sub. Code
	36431

DISTANCE EDUCATION

M.Sc. (Microbiology) DEGREE EXAMINATION,
DECEMBER 2022.

Third Semester

Microbiology

IMMUNOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Immune system
2. B cell receptors
3. Haptons
4. Epitopes
5. Immuno carriers
6. Antibody engineering
7. Vaccines
8. Transplantation
9. DNA vaccine
10. Islet cells

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Distinguish between the T cell and B cell receptors.

Or

(b) Briefly explain about the secondary lymphoid organs.

12. (a) Discuss briefly about cytokines.

Or

(b) Describe the functions of chaemokines.

13. (a) Write a brief note on T dependent and T independent antigens.

Or

(b) Give a brief account on immunogens.

14. (a) Write a short note on Autoimmune disorders.

Or

(b) Explain briefly about HLA tissue typing.

15. (a) Write short notes on hybridoma cells.

Or

(b) Explain briefly about the live vaccines.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Give an account on haematopoiesis.

17. Write in detail about the cell mediated and humoral – mediated response.

18. Describe in detail about MHC structure and its interaction with peptide.

19. Discuss in detail about the immunoglobulins.

20. Write in detail about the human pluripotent stem cells.

———————

D–7653

Sub. Code
36432

DISTANCE EDUCATION

M.Sc. (Microbiology) DEGREE EXAMINATION,
DECEMBER 2022.

Third Semester

Microbiology

MEDICAL MICROBIOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Laboratory containment

2. Sputum

3. Anthrax

4. Pneumonia

5. Salmonellosis

6. Mumps

7. Yellow fever

8. Ebola

9. Antibiotics

10. Antiparasitic drugs

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Write a short notes on cerebrospinal fluid.

Or

(b) Briefly explain about normal flora of skin.

12. (a) How to diagnose and treat Tetanus?

Or

(b) Discuss briefly about pertussis.

13. (a) Is yersiniosis is an serious disease? Explain briefly.

Or

(b) Give a brief account on leptospirosis.

14. (a) Write a short note on Japanese Encephalitis.

Or

(b) Explain briefly about mycotoxicosis.

15. (a) Briefly explain about antibacterial drugs.

Or

(b) Explain briefly about the metraindazole.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Give an account on microbiological examination of pus and wound exudates.

17. Write in detail about normal flora of respiratory tract.

18. Discuss in detail about the Hepatitis.

19. Explain in detail about Amoebiasis

20. Describe in detail about the national programmes in prevention of infectious diseases.

———————

D–7654

Sub. Code
36433

DISTANCE EDUCATION

M.Sc. DEGREE EXAMINATION, DECEMBER 2022.

Third Semester

Microbiology

ENVIRONMENTAL AND AGRICULTURAL MICROBIOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. Ecological pyramids
2. Communities
3. Composting
4. Xenobiotic
5. Acid rain
6. Phyllosphere
7. Rhizosphere
8. Sanitation
9. Lipoxygenase
10. Plant pathogen

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Explain briefly about composition and structure of environment.

Or

(b) Write a short note on characteristics and function of ecosystem.

12. (a) Discuss about the microbial changes in entrophic bodies of water.

Or

(b) Add a short note on secondary and tertiary treatment of liquid waste.

13. (a) Explain briefly about ozone depletion.

Or

(b) Write a brief account on containment of acid mine drainage.

14. (a) Describe briefly about different classification of soil.

Or

(b) Write about the symbiotic association in root nodules.

15. (a) Give a short note on mosaic disease of tobacco.

Or

(b) Discuss briefly about plant disease forecasting.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Write elaborately about concept of biosphere and ecosystem.

17. Explain elaborately about different types of solid waste and treatment of solid waste.

18. Enumerate the global environmental problems.

19. Write in detail about microbial interactions of plants.

20. Give a detailed account on host-pathogen recognition and its specificity.

———————

D–7655	Sub. Code
	36441

DISTANCE EDUCATION

M.Sc. (Microbiology) DEGREE EXAMINATION,
DECEMBER 2022.

Fourth Semester

Microbiology

BIOPROCESS TECHNOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Buffers
2. Microorganism screening
3. Spargers
4. Stirrer glands
5. Batch fermentation
6. Precipitation
7. Extractors
8. Whole broth processing
9. L-lysine
10. Lactic acid

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Describe briefly about the preservation and maintenance of industrial microorganism.

Or

(b) Add a short note on sterilization of media.

12. (a) Discuss briefly about starter culture technology.

Or

(b) Give a short note on aseptic operation.

13. (a) Differentiate solid state fermentation and submerged fermentation.

Or

(b) Write in brief about aerobic and anaerobic fermentation.

14. (a) Discuss briefly about the removal of microbial cells from fermentation products.

Or

(b) Write a short note on different chemical methods of cell disruption.

15. (a) Give a brief outline on production of organic acids.

Or

(b) Write a short note on market potential and legislation on production of recombinant proteins.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Discuss elaborately about the overview of fermentation technology and range of fermentation processes.

17. Enumerate the requirements for formulation of industrial media.

18. Give a detailed account on basic design of microbial fermentor.

19. Write in detail about the recovery and purification of fermentation products.

20. Describe elaborately about the industrial production of solvents.

———————

D–7656	Sub. Code
	36442

DISTANCE EDUCATION

M.Sc. (Microbiology) DEGREE EXAMINATION,
DECEMBER 2022

Fourth Semester

MICROBIAL BIOTECHNOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Cell fusion

2. Genetic engineering

3. Algal biotechnology

4. Amensalism

5. Toxins

6. Bacterial insecticides

7. Factor VII

8. Biocompost

9. Molecular tools

10. Ethical issues

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Give a short note on methods of gene introduction.

Or

(b) Write briefly about hybridization techniques in algae.

12. (a) Give an account on construction of transformation in algae.

Or

(b) Discuss briefly about *Bacillus thuriengenesis*.

13. (a) Add a short note on entomopathogenic fungi.

Or

(b) Describe briefly about cytokines.

14. (a) Write a short note on biodiesel production.

Or

(b) Explain briefly about optical microbial biosensor.

15. (a) Explain briefly about the product derived from GMM.

Or

(b) Give a short note on applications of GMM on human health.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain elaborately about biotechnological applications of algae in agriculture and environment

17. Describe elaborately about the principle behind the microbial pesticides

18. Give a detailed account on microbial polysaccharides and polyesters

19. Discuss in detail about the mechanism of biosensors and advantages of using microorganisms in the biosensing process

20. Write in detail about the molecular tools for genetic engineering of microorganisms

———————

D–7657

Sub. Code
36443

DISTANCE EDUCATION

M.Sc. (Microbiology) DEGREE EXAMINATION,
DECEMBER 2022

Fourth Semester

BIOINFORMATICS AND BIOSTATISTICS

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Linux
2. World Wide Web
3. Sequencing genomes
4. Motifs
5. BLAST
6. Mean
7. Binomial distribution
8. Degrees of freedom
9. Scatter diagram
10. Regression equation

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Write in brief about computational approaches to biological questions.

Or

(b) Give a short note on public biological databases.

12. (a) Describe the steps involved in analyzing genome sequences.

Or

(b) Discuss about protein data bank.

13. (a) Add a short note on secondary structure prediction.

Or

(b) Give a brief account on theorems of probability.

14. (a) Write a short note on skewness and kurtosis formula.

Or

(b) Discuss about test of goodness of fit and null hypothesis.

15. (a) Write in brief about two way classification of ANOVA .

Or

(b) Add a short note on methods of studying regression

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Give a detailed account on different operating systems with its applications

17. Explain in detail about the biological data bases with its applications

18. Write an elaborate note on phylogenetic analysis

19. Discuss in detail about measures of central tendencies.

20. Describe elaborately about correlation and its applications

———————