

**D-6960**

**Sub. Code**

**36411**

DISTANCE EDUCATION

M.Sc. (Microbiology) DEGREE EXAMINATION.

MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

First Semester

Microbiology

GENERAL MICROBIOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

Define/Comment on

1. Archaea
2. *Saccharomyces cerevisiae*
3. Semi-synthetic media
4. Hans Christian Gram
5. Disinfection
6. Nucleoid
7. Endospore

8. Eukaryotic cell
9. RNA viruses
10. Reverse Transcriptase

PART B — (5 × 5 = 25 marks)

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

11. (a) Write short notes on Bergey's manual, of bacterial classifications.

Or

- (b) Write a brief note on characteristics of fungi.

12. (a) Write short notes on simple microscope.

Or

- (b) Write short notes on sterilization.

13. (a) Write short notes on prokaryotic cell wall.

Or

- (b) Describe in brief account on lichens.

14. (a) Differentiate between pili and fimbriae.

Or

- (b) Write short notes on prokaryotic ribosome.

15. (a) Write a short note on virus related agents.

Or

- (b) Give a brief account on nomenclature of viruses.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the industrial uses of yeasts and moulds.
  17. Explain about on microbial growth curve.
  18. Explain about the structural characteristics and reproduction of protozoa.
  19. Give an account on classification of Cyanobacteria.
  20. Explain in detail about virus capsids and their arrangements
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**D-6961**

**Sub. Code**

**36412**

DISTANCE EDUCATION

M.Sc. (Microbiology) DEGREE EXAMINATION.

MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

First Semester

MICROBIAL BIOCHEMISTRY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Glycosidic bond
2. Starch
3. Deamination
4. Chromoprotein
5. Lipid peroxidation
6. Phosphodiester bonds
7. Purines
8. Isomerases

9. Carotenoids  
10. Cholera toxin

PART B — (5 × 5 = 25 marks)

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

11. (a) Give an account on structure of peptidoglycan.

Or

- (b) Write in brief about glycolysis cycle.

12. (a) Add short notes on polarity of amino acids.

Or

- (b) Explain the tertiary structure of protein.

13. (a) Explain the classification of lipids with example

Or

- (b) Give an account on different types of ribonucleic acids.

14. (a) Give brief note on classification of enzymes.

Or

- (b) Explain the enzyme specificity and co-enzymes.

15. (a) Write a brief account on phosphorescence pigment.

Or

- (b) Add brief note on Botulism toxin.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Discuss in detail about Enter Doudroff pathway.
  17. Write elaborate note on physical and chemical properties of proteins.
  18. Give detailed account on bio-synthesis of pyrimidines.
  19. Write an essay on biosynthesis and regulation of penicillin antibiotics.
  20. Discuss the functions of water soluble vitamins.
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**D-6962**

**Sub. Code**

**36413**

DISTANCE EDUCATION

M.Sc. DEGREE EXAMINATION.

MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

First Semester

Microbiology

MICROBIAL PHYSIOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

Define/Comment on:

1. Lithotrophy
2. CO<sub>2</sub> assimilation
3. Photosynthesis
4. Electron transport
5. Heat shock response
6. Aerobic respiration
7. Ammonification.

8. Phosphorylation
9. Osmosis
10. Electron carriers

PART B — (5 × 5 = 25 marks)

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

11. (a) Write short notes on bacterial growth.

Or

- (b) Write a brief note on reverse electron transport.

12. (a) Write short notes on oxygenic photosynthesis.

Or

- (b) Write short notes on green sulphur and purple bacteria.

13. (a) Write short notes on nitrogenase enzyme.

Or

- (b) Describe in brief account on carbonate respiration.

14. (a) Write a short note on substrate level phosphorylation.

Or

- (b) Write short notes on artificial electron donors.

15. (a) Write a short note on quorum sensing.

Or

- (b) Give a brief account on bioenergetics.



PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the chemotrophism and their importance.
  17. Explain about on microbial nutritional types.
  18. Explain about the structure of photosynthetic pigments.
  19. Give an account on TCA cycle.
  20. Explain in detail about transport across membrane.
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**D-6963**

**Sub. Code**

**36421**

DISTANCE EDUCATION

M.Sc. (Microbiology) DEGREE EXAMINATION.

MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

Second Semester

MICROBIAL GENETICS

(CBCS 2018-19 Academic Year onwards)

Time : 3 hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

Define / Comment on :

1. Mutagenesis.
2. Deamination.
3. Pyrimidine dimer.
4. F-factor.
5. Transduction.
6. Trp operon.
7. Colicongenetic.
8. Jumping genes.

9. Bacteriophage.  
10. Integron.

SECTION B — (5 × 5 = 25 marks)

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

11. (a) Write a short notes on mutation rate determination.

Or

- (b) Give a brief account on oxidative DNA damage.

12. (a) Explain brief about conjugational mapping.

Or

- (b) Elaborate the mechanism of natural competence.

13. (a) Write short notes on Arabinose operon.

Or

- (b) Give a brief notes on sex factor and drug resistance.

14. (a) Give a brief notes on transposable elements.

Or

- (b) Explain briefly about mechanism broad host range plasmid.

15. (a) Write short notes on negative regulation.

Or

- (b) Briefly explain about Tn 7 and 1S911.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Write in detail about the mutation and types.
  17. Explain in detail about DNA repair mechanisms.
  18. Write an detailed account on bacterial conjugation.
  19. Give a detail account on plasmids and its types.
  20. Write in detailed about function and mechanism of epigenetics.
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**D-6964**

**Sub. Code**

**36422**

DISTANCE EDUCATION

M.Sc. (MICROBIOLOGY) DEGREE EXAMINATION.

MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

Second Semester

MOLECULAR BIOLOGY AND rDNA TECHNOLOGY

(CBCS 2018-19 Academic Year onwards)

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

Define/Comment on :

1. Hyperchromicity.
2. Topoisomerase.
3. RNA polymerase.
4. *nus* A protein.
5. Cosmids.
6. Interferon.
7. Shot gun cloning.
8. RFLP.

9. CaMV.

10. Electroporation.

SECTION B — (5 × 5 = 25 marks)

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

11. (a) Write a short notes on properties of DNA.

Or

(b) Write a brief account on Meselson-Stahl experiment.

12. (a) Give brief account on antitermination.

Or

(b) Elaborate the mechanism RNA processing.

13. (a) Write a short notes on cloning vectors.

Or

(b) Give a brief notes on genomic library construction.

14. (a) Write a brief notes on Western blotting techniques.

Or

(b) Explain briefly about primer designing and amplification.

15. (a) Write short notes on gene slicing and types.

Or

(b) Brief account on micro projectile bombardment.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Write in detail about the mechanism of replication of DNA.
  17. Explain in detail about transcription process in bacteria.
  18. Write an detailed account on cloning methodologies.
  19. Give a detail account on human genome project.
  20. Write in detailed notes on plant gene transfer with example.
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**D-6965**

**Sub. Code**

**36423**

DISTANCE EDUCATION

M.Sc. (Microbiology) DEGREE EXAMINATION.

MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

Second Semester

FOOD AND DAIRY MICROBIOLOGY

(CBCS 2018-19 Academic Year onwards)

Time : 3 hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

Define/Comment on

1. Redox potential.
2. Relative humidity.
3. Fungal toxin.
4. Food poisoning.
5. Bifidus milk.
6. Food beverages.
7. Proteases.
8. MFPO.



9. Food Quality.
10. Codex alimentarius.

SECTION B — (5 × 5 = 25 marks)

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

11. (a) Write a short notes on Antimicrobial barriers in food.

Or

- (b) Briefly explain about the temperature in food preservation.

12. (a) Write short notes on Poultry products.

Or

- (b) Explain about fungal food borne infection.

13. (a) Write a short notes on normal flora of milk and milk products.

Or

- (b) Write a short notes on Yoghurt preparation.

14. (a) Write a short notes on health benefits of phytases enzyme.

Or

- (b) Write brief notes on SCP.

15. (a) Write a short notes on investigation during food borne disease outbreaks.

Or

- (b) Write a short notes on FPO

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Give an account on Intrinsic factors affecting microbial growth in food.
17. Explain in detailed about bacterial food borne infection.
18. Write in detailed about fermentation in food processing.
19. Explain in detailed about mushroom production.
20. What is food borne diseases? Explain and its note on various preventive measures.

**D-6966**

**Sub. Code**

**36431**

DISTANCE EDUCATION

M.Sc. (Microbiology) DEGREE EXAMINATION.

MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

Third Semester

IMMUNOLOGY

(CBCS 2018-19 Academic Year onwards)

Time : 3 hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. T Cell receptors.
2. Terminology.
3. Immunogenicity.
4. Epitope.
5. Valency.
6. Precipitation.
7. Nerve cells.
8. Stem cells.

9. Transplantation.

10. Islet cells.

PART B — (5 × 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 the functions and cells of the immune system

12. (a) Discuss briefly about cytokines.

Or

(b) Describe about Haptens.

13. (a) Write a brief note on antigen-antibody interaction

Or

(b) Give a brief account on haemokines.

14. (a) Write a short note on classical pathways.

Or

(b) Explain about the cytosolic pathways

15. (a) Write short notes on bone marrow.

Or

(b) Explain briefly live (or) attenuated vaccine.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Give an account on haematopoiesis.
  17. Write in detail about T dependent and T independent antigen.
  18. Describe in detail about the antigen processing and presentations.
  19. Discuss in detail about the H LA.
  20. Write in detail about hybridoma and monoclonal vaccine.
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**D-6967**

**Sub. Code**

**36432**

DISTANCE EDUCATION

M.Sc. (Microbiology) DEGREE EXAMINATION.

MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

Third Semester

Microbiology

MEDICAL MICROBIOLOGY

(CBCS 2018-19 Academic Year onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Biocontainment.
2. Sputum.
3. Throat swabs.
4. Pharyngitis.
5. Diphtheria.
6. Swine flu.
7. Metronidazole.
8. Ebola.

- 9. Antibiotics.
- 10. Pathogens.

PART B — (5 × 5 = 25 marks)

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

- 11. (a) Write short notes on laboratory management.

Or

- (b) Briefly explain about normal flora of the skin.

- 12. (a) How to diagnose and treat whooping cough?

Or

- (b) Discuss briefly about leprosy.

- 13. (a) Is vibriosis is a serious disease? How to prevent the vibriosis?

Or

- (b) Give a brief account on Salmonellosis.

- 14. (a) Write a short note on SARS.

Or

- (b) Explain about the Rabies.

- 15. (a) Briefly explain about antifungal drugs.

Or

- (b) Explain briefly about the national programs in the prevention of infectious diseases.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Give an account on microbiological examination of urine.
  17. Write in detail about the normal flora of the gasirointestinal tract and genitourinary tract.
  18. Discuss in detail about the Leptospirosis.
  19. Explain in detail about Poliomyelitis.
  20. Describe in detail about the mechanism of pathogenesis and lab diagnosis of Malaria.
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**D-6968**

**Sub. Code**

**36433**

DISTANCE EDUCATION  
M.Sc. DEGREE EXAMINATION.

MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

Third Semester

Microbiology

ENVIRONMENTAL AND AGRICULTURAL  
MICROBIOLOGY

(CBCS 2018-19 Academic Year onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Biotic environment.
2. Gasification.
3. UV-B.
4. Biomagnification.
5. Methanogenesis.
6. Trickling.
7. Greenhouse gases.
8. Rhizosphere.

9. Lipoxygenase.
10. Bacterial blight of paddy.

PART B — (5 × 5 = 25 marks)

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

11. (a) Differentiate the food chain and food web.

Or

- (b) Write a brief note on environment conservation and management.

12. (a) Give a brief account of the trophic structure.

Or

- (b) Explain the causes of eutrophication.

13. (a) Write about the treatment of liquid wastes.

Or

- (b) Explain briefly about acid rain and its management steps.

14. (a) Describe in detail the classification of soil.

Or

- (b) What are phyllosphere and mycorrhizae?

15. (a) Add a brief note on defense mechanisms in plants.

Or

- (b) Write short notes on plant disease management.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Describe in detail about ecosystem conservation and management.
  17. Give a detailed account of the global environmental problems.
  18. Describe the microbial interactions between plants.
  19. Elaborate the molecular aspects of host defense reactions in plants.
  20. Discuss the biotechnological approaches to disease management.
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**D-7358**

**Sub. Code**

**36441**

DISTANCE EDUCATION  
M.Sc. MICROBIOLOGY DEGREE EXAMINATION  
MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

Fourth Semester

BIOPROCESS TECHNOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Lyophilization
2. Antifoam agents
3. Buffers
4. Impellers
5. Submerged fermentation
6. Crystallization
7. Citric acid production
8. Vitamin-B12
9. Alcohol production
10. FDA

SECTION B — (5 × 5 = 25 marks)

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

11. (a) Explain about the primary and secondary metabolites of fermentation.

Or

- (b) Write in brief about medium requirements for the fermentation processes.

12. (a) Illustrate the construction of a fermentor.

Or

- (b) Describe the advantage and disadvantage of dual fermentation.

13. (a) Explain in detail about solid state fermentation.

Or

- (b) List the problems and requirements of bio product recovery.

14. (a) Write a brief note on the importance of chromatographic techniques.

Or

- (b) Add short note on whole broth processing for cell disruption.

15. (a) Brief the process for the production of organic acid.

Or

- (b) Outline the synthesis of penicillin antibiotic production.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Write an essay on the sterilization of media and fermenters.
  17. Elaborate on the different types of fermentation.
  18. Give a detailed account on filtration and centrifugation.
  19. Explain in detail about the commercial production of amino acids from microbes.
  20. Discuss in detail about the fermentation process for the synthesis of vitamin B-12.
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**D-7359**

**Sub. Code**

**36442**

DISTANCE EDUCATION

M.Sc. (Microbiology) DEGREE EXAMINATION

MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

Fourth Semester

Microbiology

MICROBIAL BIOTECHNOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. SCP
2. Expression vectors
3. Amensalism
4. Microbial herbicides
5. *Pseudomonas*
6. Factor VII
7. Microbial fuel cells
8. Immobilization

9. Microbial biosensor  
10. Ligase Enzyme

SECTION B — (5 × 5 = 25 marks)

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

11. (a) Explain shortly about the application of biotechnology in agriculture.

Or

- (b) Give a brief note on gene transfer methods.

12. (a) Write briefly about the basic principle of parasitism.

Or

- (b) Briefly explain about BT cotton.

13. (a) Discuss the advantages of VAM fungi.

Or

- (b) Write about tissue plasminogen activator synthesis.

14. (a) List the applications of bio compost and biogas.

Or

- (b) Give a short note on types of optical microbial biosensor.

15. (a) Add note on electrochemical microbial biosensors.

Or

- (b) Write a brief note on restriction endonucleases.



SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Write elaborate notes on therapeutic applications of bio technological products.
  17. Explain in detail about bio technological applications of algae in agriculture.
  18. Discuss the interaction of pathogen and antagonism.
  19. Explain the microbial synthesis of H<sub>2</sub> and its applications.
  20. Give a detailed account on genetically modified microorganism.
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**D-7360**

**Sub. Code**

**36443**

DISTANCE EDUCATION  
M.Sc. DEGREE EXAMINATION  
MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

Fourth Semester

Microbiology

BIOINFORMATICS AND BIOSTATISTICS

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

Write short notes on:

1. Workstations
2. Linux
3. Multiple sequence alignment
4. Motifs
5. Biochemical pathway databases
6. Median
7. Standard deviation

8. Binomial analysis
9. Regression analysis.
10. Scatter diagram

SECTION B — (5 × 5 = 25 marks)

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

11. (a) Give a note on search engines for scientific articles.

Or

- (b) Brief about pair wise sequence comparison.
12. (a) Give a note on the prediction of 3D structures of proteins.

Or

- (b) Briefly explain about phylogenetic alignments.
13. (a) Write about the Chi-square test.

Or

- (b) Add short notes on sampling techniques in statistical analysis.
14. (a) Derive methods in the correlation analysis.

Or

- (b) Give a brief account on the methods in ANOVA.
15. (a) Write about the kinds of probabilities.

Or

- (b) Enlist operating systems and their uses in bio informatics.

SECTION C — ( $3 \times 10 = 30$  marks)

Answer any THREE questions.

16. Discuss the genome sequencing and sequence assembly.
  17. Elucidate the different sequence alignment tools in biological databases with examples.
  18. Give an elaborate sketch about protein secondary and 3D structure prediction.
  19. Explain in detail about measures of central tendencies.
  20. Describe the graphical and algebraic methods in regression analysis.
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