D–5147

Sub. Code
36411

DISTANCE EDUCATION

M.Sc. (Microbiology) DEGREE EXAMINATION, DEC 2020.

First Semester

GENERAL MICROBIOLOGY

(CBCS 2018–19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

Define/Comment on:

1. Moulds.

2. Bacteria.

3. SEM.

4. Preservation.

5. Sterilization.

6. Pili.

7. BGA.

8. Lichens.

9. Prions.

10. Capsids.

SECTION B — ($5 \times 5 = 25$ marks)

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

11. (a) Write short notes on Whittaker's Five Kingdom concept.

Or

(b) Briefly explain about the Carl Woese three domain concept.

12. (a) Write short notes on the applications of TEM.

Or

(b) Write short notes on Differential staining method.

13. (a) Write short notes on Bacterial Endospores.

Or

(b) Write a note on difference between plasma membrane and cell membrane.

14. (a) Write a brief note on Micro algae.

Or

(b) Write short notes on structural and characteristics of protozoa.

15. (a) Explain about of properties of virus.

Or

(b) Explain about viroids.

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

Answer any THREE questions.

16. Discuss in detail about classification of bacteria according to Bergey's manual.

17. Explain about on factors influencing microbial growth of bacteria.

18. Describe about microbial preservation methods.

19. Describe the biological and economic importance of algae.

20. Explain in detail about life cycle of virus.

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D–5148

Sub. Code
36412

DISTANCE EDUCATION

M.Sc. (Microbiology) DEGREE EXAMINATION, DEC 2020.

First Semester

MICROBIAL BIOCHEMISTRY

(CBCS 2018–19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Invert sugar.

2. NADP.

3. Give example for sulfur containing amino acids.

4. Write about saturated fatty acids.

5. Define Nucleosides.

6. Allosteric inhibition.

7. Ribozyme.

8. Fluorescence pigment.

9. Comment on Cholera toxin.

10. Riboflavin.

SECTION B — (5 × 5 = 25 marks)

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

11. (a) Describe the properties of disaccharides.

Or

(b) Give a brief account on gluconeogenesis.

12. (a) Briefly explain the Kreb's cycle.

Or

(b) Describe the secondary structure of proteins.

13. (a) Give a brief account on phospholipids.

Or

(b) Write short notes on synthesis of purine.

14. (a) Briefly explain the properties of enzymes.

Or

(b) Explain the classification of enzymes.

15. (a) Write an account on botulism toxin.

Or

(b) Add a brief note on Co-enzymes.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain in detail about structure and functions of starch.

17. Give elaborate note on classification of proteins.

18. Discuss in detail about β oxidation of fatty acids.

19. Describe in detail about the induced fit theory of enzymes.

20. Write in detail about biological importance of vitamins.

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D–5149

Sub. Code
36413

DISTANCE EDUCATION

M.Sc. (Microbiology) DEGREE EXAMINATION, DEC 2020.

First Semester

MICROBIAL PHYSIOLOGY

(CBCS 2018-2019 Academic Year onwards)

Time : Three hours Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. Batch culture.

2. Lithotrophy.

3. Acetogenesis.

4. Carotenoids.

5. Photophosporylation.

6. Aerobic transition.

7. Ammonification.

8. Nitrogenase enzyme.

9. Energy bond.

10. Osmosis.

SECTION B — (5 × 5 = 25 marks)

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

11. (a) Write brief note on continuous culture.

Or

(b) Give a brief account on nutrition requirements of bacteria.

12. (a) Write short note on photosynthetic groups of bacteria.

Or

(b) Briefly explain about structure of chlorophyll pigments.

13. (a) Write about response of bacteria towards nutrient stress.

Or

(b) Illustrate briefly about glyoxalate cycle.

14. (a) Briefly explain about anaerobic respiration.

Or

(b) Describe shortly about enthalpy reaction.

15. (a) Write a brief account on group translocation.

Or

(b) Write about signaling molecules.

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

Answer any THREE questions.

16. Discuss the physiology and economic importance of methylotrophs.

17. Write elaborate note on cyclic and noncycle photosynthesis.

18. Explain in detail about the symbiotic nitrogen fixation by bacteria.

19. Describe in detail about electro transport chain.

20. Write elaborately about the active and passive transport of molecules across the membrane.

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D–5153

Sub. Code
36431

DISTANCE EDUCATION

M.Sc.(Microbiology) DEGREE EXAMINATION, DEC 2020.

Third Semester

IMMUNOLOGY

(CBCS 2018–19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

Define/Comment on :

1. Immunoglobulin
2. Acquired immunity
3. Immunity
4. Epitopes
5. Agglutination
6. Antigen processing
7. Vaccines
8. Stem cell
9. Anti oncogenes
10. Transplantation.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Write a short notes on functions of immune system.

Or

(b) Explain briefly about primary lymphoid organ.

12. (a) Write a short note on role of T-cell receptor.

Or

(b) Write short notes on B-cell receptor.

13. (a) Write short notes on organization of immunoglobulin genes.

Or

(b) Explain about immunogen.

14. (a) Explain the differences between T dependent and T independent antigens.

Or

(b) Explain about antibody engineering.

15. (a) Explain briefly about endocytic pathway of antigen processing.

Or

(b) Write a short notes on HLA tissue typing.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Give an account on Haematopoiesis.

17. Explain detailed about characteristics and function of cytokines.

18. Describe about classical and alternate pathway of complement system.

19. Define MHC. Explain in detailed about structure and its interaction.

20. Discuss in detail about hypersensitivity and their types.

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D–5154

Sub. Code
36432

DISTANCE EDUCATION

M.Sc.(Microbiology) DEGREE EXAMINATION, DEC 2020.

Third Semester

MEDICAL MICROBIOLOGY

(CBCS 2018–19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

Define/Comment on :

1. Biohazards
2. Wound exudates
3. Nocardiosis
4. Vibrosis
5. Measles
6. Mycotoxins
7. Emerging disease
8. Zika virus
9. Japanese encephalitis
10. Mycoses.

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions.

11. (a) What are the normal flora of the gastrointestinal tract.

Or

(b) Explain briefly about microbial examination of faeces.

12. (a) Write a short notes on leprosy.

Or

(b) Explain briefly about yellow fever.

13. (a) Write a short notes on Tetanus.

Or

(b) Explain about pathogenesis of superficial mycoses.

14. (a) Write a short notes on lab diagnosis of malaria.

Or

(b) Explain briefly about the classification of antibiotics.

15. (a) Explain briefly about zika virus.

Or

(b) Write a note on differences between emergine and re-emerging infections.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Give an account on collection and transport of clinical samples.

17. Give an account on AIDS.

18. Describe detailed about pneumonia.

19. Explain detailed about mode of action of amantidine and amphotericin.

20. Discuss about national programmes in prevention of infectious diseases.

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D–5155

Sub. Code
36433

DISTANCE EDUCATION

M.Sc.(Microbiology) DEGREE EXAMINATION, DEC 2020.

Third Semester

ENVIRONMENTAL AND AGRICULTURAL MICROBIOLOGY

(CBCS 2018–19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. Define ecoystem.
2. Define biotic and abiotic environment.
3. Gasification.
4. Methanogenesis.
5. Activated sludge.
6. Green house effect.
7. Soil texture.
8. *Rhizobium*.
9. Lipoxygenase.
10. TMV.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Write short note on conservation and management of ecosystem.

Or

(b) Give an account on food chain in tropic ecosystem.

12. (a) Write short note on secondary treatment of liquid waste.

Or

(b) Briefly explain about biotechnological approach for the management of acid rain.

13. (a) Explain briefly different types of soil.

Or

(b) Add short notes on the role of phyllophere microbes.

14. (a) Give an account on sulfur cycle.

Or

(b) Describe the host pathogen recognition in plants.

15. (a) Write an account on defence mechanism in plant.

Or

(b) Add a brief note on grassy shoot of sugar cane.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Write elaborate note on characteristics of ecosystem.

17. Discuss in detail about vermin composting.

18. Explain the symbiotic association of mycorrhizae with higher plants.

19. Describe in detail about the carbon cycle.

20. Give a detailed notes on etiology, epidemiology and management of bunchy top of banana.

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D-6508

Sub. Code
36441

DISTANCE EDUCATION

M.Sc. DEGREE EXAMINATION, DECEMBER 2020.

Fourth Semester

Microbiology

BIOPROCESS 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. Fermenter
2. Anti foam agent
3. Sterilization of media
4. Fed-batch culture
5. Crystallization
6. Aminoacids
7. Riboflavi
8. Citric acid
9. Streptomycin
10. Cell disruption

SECTION B — (5 × 5 = 25 marks)

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

11. (a) Give brief notes on fermentation process.

Or

(b) Write a brief account on media formulations.

12. (a) Give a brief account on design of fermentor.

Or

(b) Elaborate the types of fermentation.

13. (a) Write short notes on aerobic and anaerobic fermentation.

Or

(b) Give a brief notes on problems of downstream process.

14. (a) Write a brief notes on amino acid production.

Or

(b) Explain briefly about membrane process and drying of fermented product.

15. (a) Write short notes on fermentation economics.

Or

(b) Give a brief account on recombinant proteins.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Write in detail about the screening and strain improvement of industrial microorganisms.

17. Explain in detail about different centrifugal up stream process.

18. Write a detailed account on recovery of bioproducts.

19. Give a detail account on microbial production of ethanol.

20. Discuss the marketing potentials of fermented products.

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D–6509

Sub. Code
36442

DISTANCE EDUCATION

M.Sc. DEGREE EXAMINATION, DECEMBER 2020.

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 questions.

1. Recombinant Vaccine.

2. Electroporation.

3. Amensalism.

4. Nematophagy.

5. Bacillus *thuriengenesis.*

6. Viral insecticides.

7. Cytokines.

8. Biopolymers.

9. Microbial fuel cells.

10. Ligase Enzyme.

SECTION B — (5 × 5 = 25 marks)

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

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

Or

(b) Give a brief notes on hybridization techniques in algae.

12. (a) Write briefly about viral insecticides.

Or

(b) Briefly explain about microbial herbicides.

13. (a) Write brief note on entamopathogenic fungi.

Or

(b) Add short note on tissue plasminogen activator.

14. (a) Describe the production and application of biocompost.

Or

(b) Give short note on immobilization of microorganism.

15. (a) Write a brief note on molecular tools used in genetic engineering.

Or

(b) Write brief note on the application of genetically modified organism in human health.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Write elaborate notes on therapeutic applications of biotechnological products.

17. Explain in detail about microbial herbicides.

18. Discuss the interaction of pathogen and antagonist.

19. Explain the synthesis of microbial polyesters.

20. Give a detailed account on modified organism.

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D–6510

Sub. Code
36443

DISTANCE EDUCATION

M.Sc. DEGREE EXAMINATION, DECEMBER 2020.

Fourth Semester

Microbiology

BIOINFORMATICS AND BIOSTATISTICS

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

Short notes on:

1. Linux.
2. Pubmed
3. Workstations.
4. Genbank.
5. PDB.
6. Skewness.
7. Find the median and mode of the following data:14, 85, 69, 25, 97, 140, 85, 78.
8. Binomial distribution.
9. F-test.
10. Scatter diagram.

PART B — (5 × 5 = 25 marks)

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

11. (a) Write short notes on public biological databases.

Or

(b) Explain about sequence analysis.

12. (a) Write short notes on BLAST.

Or

(b) Write short notes on multiple sequence alignment.

13. (a) Give brief notes on multifunctional tools for sequence analysis.

Or

(b) Write short notes on biochemical pathway databases.

14. (a) Explain about random sampling with example.

Or

(b) Write short notes on standard deviation with examples.

15. (a) Explain briefly about the importance of ANOVA.

Or

(b) Write short notes on regression.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain in detail about different types of basic computers.

17. Write in detail about probability.

18. Elaborate the prediction of 3D structure of protein.

19. What is correlation? Explain its types with examples.

20. Write in detail about different types of distributions.

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