

F-7433

Sub. Code

7MZO1C1

M.Sc. DEGREE EXAMINATION, APRIL 2022

First Semester

Zoology

ANIMAL DIVERSITY

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Phylogeny
2. Binomial nomenclature
3. Adaptive radiation
4. Ratio Arians
5. Insecta
6. Silkworms
7. Annadramous fishes
8. Prochordates
9. Prototheria
10. Eutheria

Part B

(5 × 5 = 25)

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

11. (a) Enlist the general characters of phylum porifera.

Or

- (b) Enlist the general characters of phylum protozoa.

12. (a) Discuss about the parasitic adaptations exhibited by Helminthes.

Or

- (b) Explain about polymerphism in coelenterata.

13. (a) Enlist the general character of Arthropoda.

Or

- (b) “Cephalopods are advanced Molluscs”. Substantiate.

14. (a) Write an account of the economic importance of fishes.

Or

- (b) Enlist the general characters of prochordata.

15. (a) Discuss about migratory birds.

Or

- (b) Enlist the general characters of Reptiles.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Classify phylum protozoa upto classes citing examples.
17. Enlist the general characters of phylum Annelida. Classify them upto classes.

18. Discuss about water vascular system in Echinodermata.
 19. Enlist the general characters of Pisces. Classify them upto classes.
 20. Enlist the general characters of Amphibians classify them upto classes.
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F-7435

Sub. Code

7MZO1C3

M.Sc. DEGREE EXAMINATION, APRIL 2022

First Semester

Zoology

BIOCHEMISTRY

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Draw diagram wherever necessary.

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Mutarotation.
2. Anomer.
3. Essential amino acids.
4. Denaturation of proteins.
5. Glycolipids.
6. Micelles.
7. Co-Factor.
8. Active site.
9. Zymogen.
10. Androgen.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Give an account of the biological importance of maltose.

Or

- (b) Write short note on monosaccharides.

12. (a) Explain the secondary structure of protein.

Or

- (b) Explain the classification of proteins.

13. (a) Comment on ketogenesis.

Or

- (b) Explain the functions of nucleic acids.

14. (a) Explain the properties of enzymes.

Or

- (b) Explain the functions of any two water soluble vitamins.

15. (a) Elaborate on the synthesis of thyroxine hormone.

Or

- (b) Explain the metabolic fate of hormones.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Give a detailed account on glycolysis.
17. Elaborate on urea cycle and add a note on its significance.

18. Explain the double helix model of DNA structure.
 19. Derive Michaelis-Menten equation.
 20. Discuss the general classification of hormones.
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F-7437

Sub. Code

7MZO2C1

M.Sc. DEGREE EXAMINATION, APRIL 2022

Second Semester

Zoology

ANIMAL PHYSIOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Brunner's glands.
2. Respiratory quotient.
3. ECG.
4. Bowman's capsule.
5. Cardiac muscle.
6. Sensory neurons.
7. Osmoregulators.
8. Colour blindness.
9. Adenohypophysis.
10. Chronobiology.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the role of Pancreas in digestion.
Or
(b) Give an account on internal respiration.
12. (a) Give an account on the composition of blood.
Or
(b) Explain the regulation of water and acid base balance.
13. (a) Describe the chemical changes occur during muscle contraction.
Or
(b) Briefly explain the structure of brain.
14. (a) What is hibernation? Explain the physiology of hibernation.
Or
(b) Mention the adaptation to pressure at high altitude.
15. (a) Explain the basic mechanism of hormone action.
Or
(b) Write a brief account on circannual and lunar periodicity.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Compare the process of respiration in different animals.
17. Describe the structure of mammalian kidney and describe the process of urine formation.

18. What is Synapse? Explain the transmission of impulses through synapse.
 19. What is thermoregulation? Explain the thermoregulation in poikilotherms and homeotherms.
 20. Describe in detail the secretions and functions of adrenal gland.
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F-7438

Sub. Code

7MZO2C2

M.Sc. DEGREE EXAMINATION, APRIL 2022

Second Semester

Zoology

GENETICS

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Co-Dominance.
2. XX-XO sex determination.
3. Centromere.
4. Euchromatin.
5. Positional cloning.
6. Genetic fingerprint.
7. Enhancer.
8. RNA splicing.
9. Genotype frequency.
10. Gene pool.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write an account the contribution of Mendel to Genetics.

Or

- (b) Explain the methods and applications of pedigree analysis.

12. (a) List and explain the different types of mutation.

Or

- (b) What are sex chromosomes? Explain their structure and role in different organisms.

13. (a) Brief the different types of gene mapping methods.

Or

- (b) Explain the about the mechanism and advantages of RFLPs.

14. (a) Explain the trp-operon model of gene expression in prokaryotes.

Or

- (b) How the gene expression is controlled in eukaryotes? Explain.

15. (a) List and explain the factors affecting Hardy — Weinberg equilibrium.

Or

- (b) Explain the importance and factors affecting the frequency of a gene pool.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Give an account on the simple Mendelian traits in humans.
 17. Elaborate the architecture and types of chromosomes.
 18. Give an account on the types and applications of linkage maps.
 19. Discuss the mechanism, applications and concerns of twin study.
 20. Describe the expression of genes in *Drosophila* with examples.
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F-7439

Sub. Code

7MZO2C3

M.Sc. DEGREE EXAMINATION, APRIL 2022

Second Semester

Zoology

IMMUNOLOGY AND MICROBIOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

Write short note on the following.

1. *Bursa fabricious.*
2. Paratope.
3. Agglutination.
4. Hypersensitivity.
5. Autograft.
6. RIA.
7. Gram staining.
8. Growth phase.
9. Mycotoxin.
10. Lactobacillus.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) What are primary lymphoid organs? Explain.

Or

- (b) Write a short note on

(i) innate immunity and

(ii) acquired immunity

12. (a) Explain the mechanism of cell mediated immunity.

Or

- (b) Give the immunization schedule for children's.

13. (a) What is immunotherapy? Explain their advantages

Or

- (b) Write the applications of ELISA technique in immunology

14. (a) Give the ultra structure of bacteria *E.coli*.

Or

- (b) Give an account on types of culture media.

15. (a) Write a note on systemic infections.

Or

- (b) Explain the applications of industrially important microbes.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the structure of Immunoglobulin G.
 17. Give a detailed account on immunological disorders.
 18. Discuss the advantages of Hybridoma technology.
 19. How do you isolate microbes? Explain the method of isolation.
 20. How fungi causes infection in human? Explain with some example.
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F-7440

Sub. Code

7MZO2E1

M.Sc. DEGREE EXAMINATION, APRIL 2022

Second Semester

Zoology

Elective – SERICULTURE

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. Muga Silk worm.
2. CSTRI.
3. Mulching.
4. Leaf spot.
5. Purebred eggs.
6. Rearing of egg.
7. Muscardine.
8. Grasserie.
9. Reeling.
10. Cocoon cooling

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Give an account on History of sericulture.
Or
(b) Write short note on silk gland.
12. (a) Explain the method of land preparation for mulberry cultivation.
Or
(b) Give an account on leaf eating pests.
13. (a) Write short notes on feeding, cleaning and moulting of silk worm egg.
Or
(b) Give an account on method and production of silkworm egg.
14. (a) Comment on control of rodent pests.
Or
(b) Write note on protozoan diseases of silkworm.
15. (a) Write down the characters of marketable cocoons.
Or
(b) Comment on defective cocoons.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write a brief account on the non mulberry silkworms.
17. Give an account on the diseases of mulberry plants.

18. Explain the methods of maintenance of temperature and humidity.
 19. Comment on insect pests and economic loss.
 20. Explain the process of separating silk thread from cocoon.
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F-7441

Sub. Code

7MZO3C2

M.Sc. DEGREE EXAMINATION, APRIL 2022.

Third Semester

Zoology

ECOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Section A

(10 × 2 = 20)

Answer **all** questions.

1. Mortality
2. Commensalism
3. Food chain
4. Trophic level
5. Biogeochemical cycle
6. Organic nutrients
7. Coral reefs
8. Seaweeds
9. Decibel
10. Acid rains

Section B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Briefly explain the population concept.

Or

- (b) Write notes on ecological succession.

12. (a) Illustrate briefly the pond eco system.

Or

- (b) Explain the food web in an ecosystem.

13. (a) Briefly explain the carbon cycle.

Or

- (b) Explain the cycling of non essential elements.

14. (a) Write short notes on biotic features of freshwater habitat.

Or

- (b) Write short notes on the habitat of Mangroves.

15. (a) Write about Global warming and its effects.

Or

- (b) Explain the sources of noise pollution.

Section C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the abiotic factor-Temperature and its biological effects.
17. Write an essay on energy flow in a freshwater ecosystem.

18. Write an essay on nitrogen cycle.
 19. Write an account on biotic feature of terrestrial ecosystem.
 20. Write an essay on Water pollution.
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F-7442

Sub. Code

7MZO3C3

M.Sc. DEGREE EXAMINATION, APRIL 2022

Third Semester

Zoology

EVOLUTION

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. Lamarckism
2. Mutation theory
3. Homologous structure
4. Paleontology
5. Variation
6. Isolation
7. Mimicry
8. Co-evolution
9. Fossil
10. Cro magnon man

Part B

(5 × 5 = 25)

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

11. (a) Write note on Neo Lamarckism.

Or

- (b) Give an account on modern synthetic theory.

12. (a) Write down the morphological evidences of evolution.

Or

- (b) Give an account on anatomical evidences of evolution.

13. (a) Write note on the sources of variability.

Or

- (b) Comment on natural selection.

14. (a) Give an account on colouration.

Or

- (b) Write a brief account on species concept.

15. (a) Write note on dating methods.

Or

- (b) Write short note on Fossil records.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on origin of life.

17. Give an account on palaeontological evidences of evolution.

18. Explain the process of genetic variation in individual and in population.
 19. Explain mass extinction and adaptive radiation.
 20. Write an essay on cultural and social evolution of man.
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F-7444

Sub. Code

7MZO3E2

M.Sc. DEGREE EXAMINATION, APRIL 2022

Third Semester

Zoology

Elective – ANIMAL CELL CULTURE TECHNOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Plasma membrane.
2. CO₂ Incubator.
3. Protein free medium.
4. Culture Media.
5. Cytotoxicity.
6. Mechanical disaggregation.
7. Micromanipulation.
8. Vaccines.
9. Apoptosis.
10. Cell culture.

Part B

(5 × 5 = 25)

Answer **all** questions.

11. (a) What are the basic equipments used for animal cell culture. Explain.

Or

- (b) Briefly write about the balanced salt solution (BSS).

12. (a) Describe the Classification of culture media on the basis of composition.

Or

- (b) What are the main components of serum and its function?

13. (a) Describe the maintenance of cell culture.

Or

- (b) Give an account of Human Cell Separation Protocols.

14. (a) Describe the process of cell transformation.

Or

- (b) Briefly write a note on the cell cloning.

15. (a) What is meant by organ and histotypic cultures? Explain.

Or

- (b) Give a note on genetically engineered cell.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write about the primary and established cell line cultures.
 17. Explain the role of carbon dioxide in a culture medium
 18. Give an account on basic techniques of mammalian cell culture.
 19. Explain the embryonic stem cell and their application.
 20. Write the principle and application of cell preservation.
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F-7445

Sub. Code

7MZ03E4

M.Sc. DEGREE EXAMINATION, APRIL 2022

Third Semester

Zoology

Elective – TRANSGENIC TECHNOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Intra cervical insemination.
2. Hyperspermia.
3. Nucleotides.
4. Complementary DNA.
5. Somatic cell nuclear transfer.
6. Florida white.
7. F plasmids.
8. Linkers.
9. Phytohaemagglutinin.
10. GTG Banding.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write an account of transgenic species.

Or

- (b) Give an account of the characteristics of semen.

12. (a) What is multiple ovulation? Explain the causes for multiple ovulation.

Or

- (b) Explain the applications of Cytogenetics and Immunogenetics in animal improvement.

13. (a) Explain the strategies for the improvement of livestock for wool production.

Or

- (b) Enumerate the various breeds of poultry.

14. (a) Write short notes on Electroporation and Microinjection.

Or

- (b) Explain the superovulation and egg collection in cattle.

15. (a) Give an account on history of cell technology.

Or

- (b) List out importance of cell technology.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on “Artificial Insemination”.
 17. Describe in detail the steps involved in the construction of recombinant DNA.
 18. Explain the strategies for improvement of livestock for milk and meat.
 19. Describe in detail the various steps involved in DNA cloning.
 20. Discuss the applications of cell technology in research.
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F-7446

Sub. Code

7MZO4C1

M.Sc. DEGREE EXAMINATION, APRIL 2022

Fourth Semester

Zoology

ANIMAL BIOTECHNOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Chimeric gene.
2. rDNA.
3. Restriction endonucleases.
4. Selectable marker.
5. Inverse PCR.
6. RAPD.
7. Primary culture.
8. Somatic cell fusion.
9. Mating.
10. Gene farming.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the macromolecules in the cell and mention their functions.

Or

- (b) Discuss the basic concepts of biotechnology.

12. (a) What is plasmid? Explain the different types of plasmids.

Or

- (b) Briefly explain the different kinds of vectors available for yeast and fungi.

13. (a) Give an account on the variants of PCR.

Or

- (b) Write an account on nucleic acid hybridization.

14. (a) Briefly explain about cell types and cell growth kinetics.

Or

- (b) Give an account on stem cell culture.

15. (a) Write an account on super ovulation.

Or

- (b) Write short notes on transgenic mice and goat.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Discuss the various applications of genetic engineering.
 17. Describe the strategy for the isolation and purification of DNA and plasmids.
 18. What is DNA sequencing? Explain the procedure for DNA sequencing.
 19. Describe the various types of animal cell culture media for culture technique.
 20. Describe *knock in* and *knock out* technology and its applications.
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F-7447

Sub. Code

7MZO4E1

M.Sc. DEGREE EXAMINATION, APRIL 2022

Fourth Semester

Zoology

Elective – FISHERY BIOLOGY AND AQUACULTURE

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. How are fishes classified?
2. Name any two modern craft for capture of fishes.
3. Write the concept conservation of fishes.
4. How do you identify the freshness of fishes?
5. List some cultivable species of fishes.
6. What you meant by brood stock?
7. What are live feeds?
8. Define HACCP.
9. Name any two diseases in fishes.
10. What is meant by intensive culture?

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Give an account on economically important marine fishes.

Or

- (b) Write about some fishery by products and its economic importance.

12. (a) Explain the method of management of fisheries operations.

Or

- (b) Give the various methods of processing of fishes after harvesting.

13. (a) Explain about the various culture systems.

Or

- (b) How do you construct a earthen pond? Explain.

14. (a) Give a note on larval production and management.

Or

- (b) What are the advance methods incorporated in hatchery systems? Explain.

15. (a) How do you maintain the water quality in freshwater fish farming? Explain.

Or

- (b) Write about the significance of open and closed culture systems.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Describe about food and feeding habit of common cultivable freshwater fishes.
 17. Explain the importance of in-situ and ex-situ conservation of fishes.
 18. Discuss on the present status of aquaculture in India.
 19. Explain the constraints in disease management on cultivable species.
 20. Give an account on integrated fish farming.
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