

F-2004

Sub. Code

7MZO1C2

M.Sc. DEGREE EXAMINATION, APRIL 2019

First Semester

Zoology

CELL AND MOLECULAR BIOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

Write a note on :

1. Resolution.
2. Bilayer.
3. Polyribosomes.
4. Golgi vesicles.
5. DNA polymerase.
6. Template.
7. Informosome.
8. Regulatory genes.
9. Oncogene.
10. Integrin.

Part B

(5 × 5 = 25)

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

11. (a) Differentiate the structure of prokaryotic and Eukaryotic cells.

Or

- (b) Give an account on general properties of cytoplasmic matrix.

12. (a) Write a note on structural variations in mitochondria.

Or

- (b) What are the different types of ribosomes? Explain.

13. (a) Write about discontinuous model for DNA replication.

Or

- (b) Explain the features of the genetic code.

14. (a) Write a note on non-genetic RNA.

Or

- (b) Give the functions of regulatory gene.

15. (a) What is second messenger? Explain their functions.

Or

- (b) Write the functions of gap junctions.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Describe the ultra structure of plasma membrane.
 17. Give a detailed account on cell cycle.
 18. Differentiate prokaryotic and Eukaryotic DNA replications.
 19. Explain the types and synthesis of rRNA.
 20. Discuss the functions of cell surface receptors.
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F-2005

Sub. Code

7MZO1E1

M.Sc. DEGREE EXAMINATION, APRIL 2019

First Semester

Zoology

Elective : BIOSTATISTICS

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Pictogram
2. Bar diagram
3. Arithmetic mean
4. Quartile deviation
5. RBD
6. F-test
7. Regression
8. Apriori probability
9. Degrees of freedom
10. Multiple correlation

Part B**(5 × 5 = 25)**

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

11. (a) Discuss the classification of data.

Or

- (b) Give a short account on graphical representation of data.

12. (a) The following are the weights in g of a frog species, with a sample size of $n=8$ Weight in g : 75, 60, 55, 80, 45, 70, 40, 85. Find median for the given data.

Or

- (b) Discuss the types of mean and importance.

13. (a) Fit a Normal distribution and test its goodness of fit for the following data of weight of 100 mature female fishes.

Weighting	60-62	63-65	66-68	69-71	72-74
No. of fishes	5	18	42	27	8

Or

- (b) Write down the applications of ANOVA.

14. (a) Samples of one year old adult male *Thilapia* were collected one from each of two geographically isolated lakes, and their body lengths were measured to the nearest millimeter. From the data below, determine whether there is statistically difference between males of the two population in terms of body length.

$$X_1 = 74, S_1^2 = 225, n_1 = 42; X_2 = 78, S_2^2 = 169, n_2 = 56$$

Or

- (b) An urn contains, 10 white, 10 black, and 10 red balls. A ball to drawn at random. What is the probability that the ball is either white or red?
15. (a) Write the types, methods and significance of correlation.

Or

- (b) What is regression analysis? Explain the properties of regression line.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Discuss the collection of biological data.
17. Calculate the standard deviation, and coefficient of variation for the following data of length (mm) of an aquarium fishes. Represent the data in histogram.
- | | | | | | |
|---------------|-----|------|-------|-------|-------|
| Length in mm | 0-6 | 6-12 | 12-18 | 18-24 | 24-30 |
| No. of fishes | 4 | 8 | 16 | 9 | 3 |
18. Total mercury level in micrograms per gram bodyweight per fish in four polluted areas are given below. Test whether mercury pollution level is uniform in all the four areas.

Area- A	Area- B	Area- C	Area- D
0.45	1.64	1.56	0.65
0.35	1.67	1.55	0.59
0.32	1.85	1.69	0.69
0.68	1.57	1.67	0.62
0.53	1.59	1.60	0.70
0.34	1.61	1.68	0.64
0.61	1.53	1.65	0.81

19. On the basis of the following data on hair colour and sex of 100 persons, find out if an association exists between the factors sex and hair colours.

Sex	Hair colour	
	Blonde	Brunette
Male	20	30
Female	24	26

20. The following data are sparrow wing lengths at various times after hatching. Find out the regression equation Y on X and estimate the age (days) of the sparrow when the wing length is 3.5cm

Age (days) X	3.0	4.0	5.0	6.0	8.0	9.0	10.0	11.0	12.0	14.0
Wing length (cm)Y	1.4	1.5	2.2	2.4	3.1	3.2	3.2	3.9	4.1	4.7

F-2006

Sub. Code

7MZO2C1

M.Sc. DEGREE EXAMINATION, APRIL 2019

Second Semester

Zoology

ANIMAL PHYSIOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Section A

(10 × 2 = 20)

Answer **all** questions.

1. List out the intestinal hormones.
2. What is meant by internal respiration?
3. Explain the term high BP.
4. Give some comment on Acid-base balance.
5. What is meant for synapse?
6. What are types of muscles?
7. Define the term hibernation.
8. What is meant by poikilotherms?
9. Differentiate endocrine and exocrine glands.
10. Define circadian rhythm.

Section B

(5 × 5 = 25)

Answer **all** questions.

11. (a) Compare the respiration of different animals.

Or

- (b) Briefly explain the transport of gases.

12. (a) Write about blood volume and its regulation.

Or

- (b) Give a short note on structure and function of nephron.

13. (a) Describe the ultra structure of skeletal muscle.

Or

- (b) Explain the mechanisms of muscle contraction.

14. (a) Give an account of photoreceptor in man.

Or

- (b) Write short note on buoyancy mechanism in animals.

15. (a) What are the basic mechanisms of hormone action?

Or

- (b) Give a note on biological clock.

Section C

(3 × 10 = 30)

Answer any **three** questions.

16. Write about digestion and absorption process of carbohydrate in man.

17. Explain the cardiac cycle.

18. Give an account on the structure brain.
 19. Explain the process of osmotic and ionic regulation in fresh water fish.
 20. Write an essay on the functions of endocrine glands.
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F-2007

Sub. Code

7MZO2C2

M.Sc. DEGREE EXAMINATION, APRIL 2019

Second Semester

Zoology

GENETICS

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

Write short note on the following :

1. Polygenic inheritance
2. F₁ Generation
3. XX-XO Sex determination
4. Chiasma
5. GTG banding
6. Physical Mapping
7. TATA box
8. Repressors
9. Twin study
10. Genotype frequency.

Part B

(5 × 5 = 25)

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

11. (a) List out the scope of Genetics with the applications of human health.

Or

- (b) Explain the contribution of Mendel to genetics.

12. (a) Give a short account on mechanisms of linkage and its applications.

Or

- (b) Explain the structure and types of chromosomes.

13. (a) Elucidate the Sanger method of Gene sequencing.

Or

- (b) Brief the various methods to map a gene.

14. (a) Elucidate the mechanism of gene expression in prokaryotes.

Or

- (b) Give the control mechanism of an eukaryotic gene.

15. (a) What is a gene pool? Explain its impact in a population.

Or

- (b) Give a short account on the role of gene frequency in a population.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Give a detailed essay on laws of Mendel with suitable examples.
 17. Describe the structural and numerical abnormalities of chromosome with examples.
 18. Write an elaborate account on gene mapping methods with molecular markers.
 19. Give a detailed account on genetic regulation development and differentiation.
 20. Describe about the factors affecting the HWE.
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F-2008

Sub. Code

7MZO2C3

M.Sc. DEGREE EXAMINATION, APRIL 2019

Second Semester

Zoology

IMMUNOLOGY AND MICROBIOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Section A

(10 × 2 = 20)

Answer **all** questions.

1. Antigen.
2. Acquired immunity.
3. Immunoprophylaxis.
4. Rheumatoid arthritis.
5. Synkaryon.
6. RIA.
7. Micro algae.
8. Culture media.
9. Herpes viridae.
10. Pasteurization.

Section B

(5 × 5 = 25)

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

11. (a) Write an account on types, sources and functions of Antibodies.

Or

- (b) Give an account of cell mediated immunity.

12. (a) Comment on immune response to protozoan diseases.

Or

- (b) Give an account on primary and secondary immune response.

13. (a) Write a short note on Radio Immunological Assay.

Or

- (b) Explain Flow Cytometry.

14. (a) Comment on different types of culture media.

Or

- (b) Explain different shapes and size of viruses.

15. (a) Comment on mycotoxins.

Or

- (b) Give an account on microbes of milk and food.

Section C

(3 × 10 = 30)

Answer any **three** questions.

16. Briefly explain molecules of immune system.
17. Comment on types of Hypersensitivity.

18. Write note on immunofluorescence microscopy.
 19. How will you isolate, enumerate and identify microbes by using biochemical and molecular tools?
 20. Comment on isolation, preservation and strain improvement of industrially important microorganisms.
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F-2009

Sub. Code

7MZO2E1

M.Sc. DEGREE EXAMINATION, APRIL 2019

Second Semester

Zoology

Elective : SERICULTURE

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Silk Road.
2. *Eri* Silkworm.
3. Leaf picking.
4. Cercospora leaf spot disease.
5. Brushing.
6. Rearing stand
7. Septicemia.
8. Straw mite.
9. Floss percentage.
10. Cocoon cooking.

Part B

(5 × 5 = 25)

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

11. (a) Write the scope of sericulture.

Or

- (b) Write short note on NSP and CSTRI.

12. (a) Give an account on leaf eating pest of mulberry.

Or

- (b) Comment on preservation of mulberry leaf.

13. (a) Write a note on Chandrika and its advantages.

Or

- (b) Explain the methods of mounting.

14. (a) Write about the causative organism, mode of transmission and control of bacterial Flacherie.

Or

- (b) Give an account on Uzi fly pest of silkworm.

15. (a) Write about defective cocoon.

Or

- (b) Comment on steam stifling.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Describe morphology and advantage of *Bombyx mori*.

17. Write an essay on methods of vegetative propagation.

18. Discuss the different methods of disinfection in sericulture.
 19. Explain the various viral disease of silkworm.
 20. Describe about cocoon marketing.
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F-2010

Sub. Code

7MZO2E2

M.Sc. DEGREE EXAMINATION, APRIL 2019

Second Semester

Zoology

**Elective — WILD LIFE CONSERVATION AND
MANAGEMENT**

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

Write short notes on:

1. Genetic diversity.
2. Key stone species.
3. Endangered species.
4. Hot spots.
5. Biosphere reserves.
6. Mangroves.
7. IUCN.
8. Threatened species.
9. Predators.
10. Population density.

Part B

(5 × 5 = 25)

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

11. (a) Explain the consumptive use and productive use values of biodiversity.

Or

- (b) Write a brief account of floristic regions of India.

12. (a) What is meant by endemism? Add note on endemic species of India.

Or

- (b) Briefly explain about the various threads to biodiversity.

13. (a) Explain the Wild life legislations in India to protect Wild life.

Or

- (b) Give an account of National parks in India.

14. (a) Mention the Zoological classification of Wild animals.

Or

- (b) Explain the various measures for the development and conservation of water supply.

15. (a) Write short notes on nest loss and nest predators.

Or

- (b) Write an account of the impact of human interference on Zoo animals and birds.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. “India as a Mega-diversity Zone” — Discuss.
 17. Describe in detail the In-situ conservation of biodiversity.
 18. Discuss in detail the biological and ecological basis of Wild life management.
 19. Write an account on the various voluntary organizations of Wild life and mention their role in Wild life protection.
 20. Describe the distribution of important Indian animals.
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F-2011

Sub. Code

7MZO3C1

M.Sc. DEGREE EXAMINATION, APRIL 2019

Third Semester

Zoology

DEVELOPMENTAL BIOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

Write short notes on:

1. Spermiogenesis
2. Fertilizin
3. Fate maps
4. Archenteron
5. Aortic arches
6. Cell aggregation
7. Blastema
8. Morpholaxis
9. Artificial insemination
10. Liquid nitrogen

Part B

(5 × 5 = 25)

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

11. (a) Explain the structure of sperm.
Or
(b) Write the types of cleavage.
12. (a) Write a brief account on fate maps.
Or
(b) Discuss the morphogenetic movements.
13. (a) Elaborate cellular differentiation in chick.
Or
(b) Explain cellular aggregation in Amphibians.
14. (a) Give an account on regeneration on insect.
Or
(b) Describe the events takes place during metamorphosis of frog.
15. (a) Write the procedure of induced breeding.
Or
(b) Write an account on cryopreservation.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the process of fertilization.
17. Describe gastrulation in frog.
18. Give a detailed account on development of eye in chick.
19. Write a detailed account on organizer.
20. Describe in detail about placentation in mammals.
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F-2012

Sub. Code

7MZO3C2

M.Sc. DEGREE EXAMINATION, APRIL 2019

Third Semester

Zoology

ECOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

Write short notes on :

1. Thermal stratification
2. Mortality
3. Ecological pyramids
4. Secondary production
5. Denitrification
6. Organic nutrients
7. Forest biome
8. Intertidal muddy shore
9. Bioremediation
10. Noise pollution.

Part B

(5 × 5 = 25)

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

11. (a) Explain the effect of light on the distribution of animals with suitable examples.

Or

- (b) Give an account on ecological succession.

12. (a) What is food chain? Explain the different types of food chain.

Or

- (b) Write short note on food web and productivity of an ecosystem.

13. (a) Explain the cycling of carbon in the environment.

Or

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

14. (a) Write short notes on seaweeds and sea grasses.

Or

- (b) Write an account on mangroves and its biological features.

15. (a) Write an account on the various organizations involved in environmental protection.

Or

- (b) Give an account on germplasm conservation and its applications.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Describe the structure and characteristics of a community.
 17. Discuss the biotic and abiotic components of a freshwater ecosystem.
 18. What are biogeochemical cycles? Discuss the role they play in the ecosystem.
 19. Describe the biotic features of marine and terrestrial habitats.
 20. Write an essay on air pollution and its effects on environment and organisms.
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F-2013

Sub. Code

7MZO3C3

M.Sc. DEGREE EXAMINATION, APRIL 2019

Third Semester

Zoology

EVOLUTION

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Section A

(10 × 2 = 20)

Answer **all** questions.

1. H.M.S. Beagle.
2. Gene mutation.
3. Analogous structure.
4. Atavism.
5. Genetic drift.
6. Geographic isolation.
7. Pyletic speciation.
8. Warning mimicry.
9. Palaeolithic culture.
10. Biostratigraphy.

Section B

(5 × 5 = 25)

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

11. (a) Give a brief account on Modern synthetic theory of evolution.

Or

- (b) Give a brief note on Neo Darwinism.

12. (a) Highlight the morphological evidences for evolution.

Or

- (b) Give a brief account on palaeontological evidences for organic evolution.

13. (a) Write a note on natural selection.

Or

- (b) Briefly describe the reproductive isolation.

14. (a) Give a brief note on co-evolution.

Or

- (b) Write a brief note on origin of species.

15. (a) Write a note on dating methods of fossil.

Or

- (b) Give a brief account on human origin.

Section C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on Lamarckism.
17. Give an elaborate account on physiological and biochemical evidences for evolution.

18. Explain in detail about the genetic variation.
 19. Write an essay on mimicry and colouration.
 20. Explain in detail about the cultural evolution of man.
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F-2017

Sub. Code

7MZO4C1

M.Sc. DEGREE EXAMINATION, APRIL 2019

Fourth Semester

Zoology

ANIMAL BIOTECHNOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What is GMO?
2. Define Gene therapy
3. What is plasmid?
4. Write a note on role of vectors
5. Define eDNA library
6. What is Finger print?
7. What is stem cell?
8. Define cell line
9. Write a short note on knock out mice
10. What is gene pool?

Part B**(5 × 5 = 25)**

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

11. (a) Write the physical properties of macromolecules.

Or

- (b) What is the basic principles of genetic engineering?
Explain with an example.

12. (a) What are the major classes of plasmids? Explain.

Or

- (b) How restriction enzymes are recognize their specific sequence of nucleotide? Explain.

13. (a) Write any one method of screening of genomic library with example.

Or

- (b) What are the types of genetic markers? Explain.

14. (a) How the cell lines are categorized ? Write types.

Or

- (b) List out some valuable cell culture products with example.

15. (a) Write a note on stem cell transgenesis.

Or

- (b) What is knock out technology? Write the applications.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Describe the applications of genetic engineering in various field.
 17. Give an account on the applications of plasmids.
 18. Explain the advantages of bacterial and yeast artificial chromosomes.
 19. Write the types of animal cell cultures.
 20. Explain the differences between conventional breeding and transgenesis.
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F-2018

Sub. Code

7MZO4E1

M.Sc. DEGREE EXAMINATION, APRIL 2019

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. What are Morphometric characters?
2. What is Cod liver oil?
3. Define — Endangered species.
4. What is *Ex-situ* conservation?
5. What is pen culture?
6. Define – Cultivable fishes.
7. What is Broodstock?
8. Define — HACCP system in hatchery.
9. Define – closed culture system.
10. Define – Integrated farming.

Part B**(5 × 5 = 25)**

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

11. (a) Explain the general classification of fishes.

Or

- (b) Write about the fishery by products.

12. (a) Write short notes on post harvesting technology.

Or

- (b) Write about the various fish processing methods.

13. (a) Briefly classify the cultivable fishes..

Or

- (b) Explain Brood stock sourcing and collection methods.

14. (a) Briefly explain the types of hatchery.

Or

- (b) Write an account on larval production.

15. (a) Write notes on water quality in fish farming.

Or

- (b) Write an account on integrated fish farming.

Part C**(3 × 10 = 30)**

Answer any **three** questions.

16. Give an account on indigenous and modern crafts and gears used for capture fisheries.
17. Write an account on physical and biochemical methods to examine freshness of fish.

18. Write an essay on aquaculture status of India.
 19. Write an account on live feed production.
 20. Give an account on disease management in cultivable species.
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