F–3009

Sub. Code
7MZO1C2

M.Sc.DEGREE EXAMINATION, NOVEMBER 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.

1. List any two applications of SEM.
2. What is Hyaloplasm?
3. What is receptor?
4. Which organ is a post office of cell?
5. What is origins?
6. Define introns.
7. Write a note on capping.
8. What is gene silencing?
9. What are the major signaling molecules?
10. Define CAMs.

Part B $(5 \times 5 = 25)$

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

11. (a) Explain the general properties of protoplasm.

Or

(b) Give a short account on fluid mosaic model of plasma membrane.

12. (a) Write a note on the functions of lysosomes.

Or

(b) Give the applications of somatic cell nuclear transplantation.

13. (a) What is replication fork? How enzymes are involved in the DNA replication fork? Explain.

Or

(b) What are nonsense codons? Write a note on it.

14. (a) Give an account on DNA replication in eukaryote.

Or

(b) Write the mechanism of regulation of transcription of gene.

15. (a) Write a note on G protein activation and deactivation cycle.

Or

(b) What are the three types of cellular communication? Explain.

Part C (3 × 10 = 30)

Answer any **THREE** questions.

16. Describe the ultra structure of plasma memberane.

17. Give an account on cell cycle.

18. Discuss on DNA replication in prokaryotes.

19. Describe the structure of trp operon.

20. Explain the structure and functions of cell adhesion molecules.

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F–3010

Sub. Code
7MZO1E1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2019

First Semester

Zoology

Elective – BIOSTATISTICS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Pie chart
2. Ogives
3. Mode
4. Range
5. ANOVA
6. Bell shaped curve
7. Hypothesis testing
8. P-Value
9. Degrees of freedom
10. Rank correlation

Part B (5 × 5 = 25)

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

11. (a) Give an account on classification of data.

Or

(b) Discuss the types of scatter diagrams.

12. (a) Calculate the median and mode for the distribution of the weights of 150 sheep from the data given below.

Weight in	30-40	40-50	50-60
Frequency	18	37	45
Weight in	60-70	70-80	80-90
Frequency	27	15	8

Or

(b) Compute the arithmetic mean for the number of eggs per nest of a species of bird.

No. of eggs per nest	0	1	2	3	4	5	6
Frequency	5	8	12	12	12	7	4

13. (a) Discuss the importance of hypothesis testing in biology. Add notes on the types of errors in hypothesis testing

Or

(b) Write a brief account on poisson distribution.

14. (a) Discuss the application of Bayes theorem in genetics.

Or

(b) Describe allele frequency in a population.

15. (a) Discuss the steps involved hypothesis testing and write its applications.

Or

(b) Write the types, methods and significance of correlation.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Give an account on characteristics and types of classification of data.

17. Serum Lipid Peroxide (SLP) levels often adults undergoing treatment for diabetes mellitus were recorded to be

No.of patient	1	2	3	4	5	6	7	8	9	10
SLP value	5.85	6.17	6.09	7.7	3.17	3.83	5.17	4.31	3.09	5.24

Compute the mean, variance, standard deviation.

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

(Critical value 'F' at $p<0.05$ df 3.24 = 3.01)

19. According to a genetic model black coat colour in mice is inherited as simple dominant trait, and brown colour is inherited as a recessive trait. A cross between pairs of heterozygous black mice produces an F_2 generation consisting of 220 black and 60 brown mice. Does this ratio differ significantly from the expected ratio. (Table value: χ^2 = at 0.05LS 3.841).

20. Find the coefficient of correlation for the following data of length and weight of the given

Length (mm)	62	61	60	59	58	55	53	52	50
Weight (gm)	23	21	19	18	17	15	14	12	11

F–3011

Sub. Code
7MZO2C1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2019

Second Semester

Zoology

ANIMAL PHYSIOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define the term digestion.
2. What is gastrin?
3. What is homeostasis?
4. Haemopoiesis – Define.
5. What is Neurons?
6. Define the structure of synapse.
7. Define the term Aestivation.
8. What is meant by osmosis?
9. Explain the term endocrinology.
10. Define circadian rhythm.

Part B (5 × 5 = 25)

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

11. (a) What are the gastrointestinal hormones?

Or

(b) Briefly explain the transport of oxygen.

12. (a) Write about blood clotting mechanism.

Or

(b) Give a short note on urine formation in man.

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

Or

(b) Explain the mechanisms and transmission of nerve impulse.

14. (a) Give an account of thermoregulation in poikilothermic animals.

Or

(b) What are the adaptation to high altitude in various animals? Explain.

15. (a) Write a note on master glands.

Or

(b) Describe the neuroendocrine regulation in insects.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Compare the respiration in different animals.

17. Explain the principle and significances of EGC.

18. Give an account on chemicals changes during muscle contraction.

19. Write an essay on osmotic and ionic regulation of fresh water fish.

20. Discuss in detail about biological clock.

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F–3012	Sub. Code
	7MZO2C2

M.Sc DEGREE EXAMINATION, NOVEMBER 2019

Second Semester

Zoology

GENETICS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

Write short notes on:

1. Epistasis
2. Codominance
3. Euchromatin
4. Point mutation
5. RFLP
6. Centimorgan
7. Antitermination
8. Rho factor
9. Genotype frequency
10. Twin study

Part B (5 × 5 = 25)

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

11. (a) Demonstrate the law of dominance with an example.

Or

(b) Give a short account on sex linked inheritance with example.

12. (a) List out the practical applications of various types of mutations.

Or

(b) Explain about structure, types, functions and applications of heterochromatin.

13. (a) Give a short account on linkage maps with examples.

Or

(b) Explain the method and application of tetrad analysis.

14. (a) Write a short account on control of gene expression in phages.

Or

(b) Explain about the hormonal control of gene expression in eukaryotes.

15. (a) State the HW law and explain its applications in population genetics.

Or

(b) Give an account on Euthenics.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Give an essay on multiple alleles with suitable examples.

17. Describe the various methods of sex determination in animals.

18. Elaborate the method and application of QTL mapping.

19. Write an account on the sequential expression of genes with reference to Drosophila.

20. Discuss the deciding and affection factors of a population.

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F–3015

Sub. Code
7MZO2E2

M.Sc. DEGREE EXAMINATION, NOVEMBER 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. Species diversity.
2. Temperate zone.
3. Endemic species.
4. Over exploitation.
5. Buffer zone.
6. Reserve forest.
7. WWF.
8. Vulnerable species.
9. Mortality.
10. Zoological garden.

Part B (5 × 5 = 25)

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

11. (a) Give an account on social, ethical and aesthetic values of biodiversity.

Or

(b) Write an account of various mega diversity Countries of the World.

12. (a) Write a short notes on endangered fauna and flora of India.

Or

(b) Mention about the Man Wild life conflict.

13. (a) Give an account on biological basis of Wild life management.

Or

(b) Write a brief account of various types of forest in India.

14. (a) Write a brief account on Wild life protection Act.

Or

(b) Explain the various funding agencies for Wild life research.

15. (a) Give an account of refuge rehabilitation.

Or

(b) Write short notes on population density and prey — predators relationship.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Describe in detail the bio-geographical classification of India.

17. Give an account of Ex-situ conservation of biodiversity.

18. Discuss the Wild life sanctuaries of India and their ecology.

19. Explain the rules and regulations of Zoo Authority of India.

20. Write an account of the movement and breeding characteristics of zoo animals and birds.

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F–3016

Sub. Code
7MZO3C1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2019

Third Semester

Zoology

DEVELOPMENTAL BIOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Polarity
2. Amphimixis
3. Vital stains
4. Emboly
5. Optic cup
6. Neurogenesis
7. Prothoracic hormones
8. Chordamesoderm
9. ICSI
10. FSH

Part B (5 × 5 = 25)

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

11. (a) Describe the process to prevent polyspermy.

Or

(b) Explain the Classification of eggs.

12. (a) Write a brief account on organ forming areas of Chick.

Or

(b) Discuss the morphogenetic movements.

13. (a) Elaborate cellular differentiation in Amphibians.

Or

(b) Explain development of eye in chick.

14. (a) Give all account on regeneration in frog.

Or

(b) Describe the events takes place during metamorphosis of insects.

15. (a) Discuss the procedure of induced breeding.

Or

(b) Write an account on test tube baby.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain the process of fertilization.

17. Describe gastrulation in mammals.

18. Give a detailed account on development of heart in chick.

19. Write a detailed account on organizer.

20. Describe in detail about foetal membranes in chick.

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F–3017

Sub. Code
7MZO3C2

M.Sc. DEGREE EXAMINATION, NOVEMBER 2019

Third Semester

Zoology

ECOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Aestivation.
2. Population density.
3. Food web.
4. Trophic levels.
5. Complete biogeochemical cycle.
6. Sedimentary cycle.
7. Neckton.
8. Mangroves.
9. Decibel.
10. Germplasm conservation.

Part B (5 × 5 = 25)

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

11. (a) What is parasitism? Explain the different form of parasitism.

Or

(b) Light is indispensable as it influences the growth and distribution of organism — Comment on this statement.

12. (a) Give a note on food chain and its types.

Or

(b) What is primary production? Write about the measurement of primary production.

13. (a) Explain the role of microbes in Sulphur cycle.

Or

(b) Comment on carbon cycle.

14. (a) Explain biological features of coral reefs.

Or

(b) Comment on lotic habitats adaptions? Add note on lotic fauna.

15. (a) Give an account on role of microbes in bioremediation.

Or

(b) Explain the sources and control of air pollution.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on characteristics of community.

17. Describe energy flow in ecosystem.

18. Explain nitrogen cycle.

19. Give an account on salient features of an estuarine environment and explain how animal communities are adapted them.

20. Discuss various sources of water pollution and their effects of animals.

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F-3018

Sub. Code
7MZO3C3

M.Sc. DEGREE EXAMINATION, NOVEMBER 2019

Third Semester

Zoology

EVOLUTION

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **ALL** the questions.

1. Origin of Species.
2. Lethal mutation.
3. Homologus structure.
4. Palaentology.
5. Gene flow.
6. Ethological isolation
7. Co-evolution.
8. Warning colouration.
9. Neolithic culture.
10. Stratigraphy.

Part B (5 × 5 = 25)

Answer **ALL** the **qu**estions, choosing either (a) or (b).

11. (a) Give a brief account on DeVries theory of mutation.

Or

(b) Give a brief note on Neo Lamarckism.

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

Or

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

13. (a) Write a note on genetic variation.

Or

(b) Briefly describe the geographic isolation.

14. (a) Give a brief note on adaptive radiation.

Or

(b) Write a brief note on colouration.

15. (a) Write a note on fossil records.

Or

(b) Give a brief account on geological time scale.

Part C (3 × 10 = 30)

Answer any **THREE** questions.

16. Write an essay on Darwinism.

17. Give an elaborate account on morphological and anatomical evidences for evolution.

18. Explain in detail about the isolating mechanism.

19. Write an essay on species concept.

20. Explain in detail about the human evolution.

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F–3019

Sub. Code
7MZO4C1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2019

Fourth Semester

Zoology

ANIMAL BIOTECHNOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define genetic manipulation.
2. What is Chimeric DNA?
3. Write a short note on vector.
4. Write is natural cloning?
5. Define denaturation.
6. What is cDNA?
7. What is ATCC?
8. Define Hybridoma
9. Make a brief note on IVF
10. What is Microinjection?

Part B $(5 \times 5 = 25)$

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

11. (a) Write the advantage of genetic engineering.

Or

(b) How do you create a recombinant DNA? Explain.

12. (a) Write a note on yeast plasmid and their applications.

Or

(b) What is artificial cloning? Explain with an example.

13. (a) Write the medical application of PCR.

Or

(b) What are limitations of using PCR? Explain.

14. (a) What are the types of animal cell culture? Explain.

Or

(b) Give the components of cell culture media and its functions.

15. (a) Write the risks of super ovulation.

Or

(b) Explain the advantages of production of transgenic animals.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Describe the various applications of rDNA Technology.

17. Give an account on stem cell cloning and their advantages.

18. Discuss on DNA-DNA hybridization.

19. Explain the concepts of animal cell culture.

20. Describe the gene transfer technology and their advantages.

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F–3020

Sub. Code
7MZO4E1

M.Sc. DEGREE EXAMINATION, NOVEMBER 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. *Catla catla*
2. Spawning.
3. Endangered Species
4. HACCP
5. Shell fishes
6. Brood stock
7. *Brachionus* culture
8. Biosecurity
9. Pellets
10. Open culture system

Part B (5 × 5 = 25)

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

11. (a) Write about craft and gears.

Or

(b) Give an account on fishing byproducts.

12. (a) Explain management of fishing operations.

Or

(b) Write in detail on *In situ and Ex situ* conservation.

13. (a) Write cage culture and list out its advantages.

Or

(b) Give an account on pond culture.

14. (a) Write about the feed management in aquaculture.

Or

(b) Comment on types of hatchery.

15. (a) Highlight race way culture system.

Or

(b) Write about paddy cum fish culture.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain economically important marine fishes.

17. Describe fish processing methods.

18. Discuss the present status of aquaculture in India.

19. Give an account on recent trends in hatchery system.

20. Write an essay on water quality and disease management of fresh water cultivable species.

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