

PG-746

MZO-21

**M.Sc DEGREE EXAMINATION —
DECEMBER, 2019.**

Second Year

Zoology

DEVELOPMENTAL BIOLOGY AND IMMUNOLOGY

Time : 3 hours

Maximum marks : 75

PART A — (5 × 5 = 25)

Answer the following question of either/or type.

Each answers should not exceed 300 words.

1. (a) Draw a structure of mammalian Ovum and explain.

Or

- (b) Explain the role of cytoplasm in Differentiation.

2. (a) Describe various types of Cleavage occur during plane of cell division.

Or

- (b) Write short note on Fat Map.

3. (a) What are the major induction events during Eye development?

Or

- (b) Give note on main hormone and their involvement in insect Metamorphosis.

4. (a) Comment on the Secondary lymphoid organs.

Or

- (b) Explain Reactive sites and Receptor site.

5. (a) Brief note on immune response to Bacterial disease.

Or

- (b) Narrate the Immuno Deficiency.

PART B — (5 × 10 = 50)

Answer the following question of either/or type.

Each answers should not exceed 1000 words.

6. (a) Describe the event of Sperm transport in various animals.

Or

- (b) What is Specification? Discuss various types of Specification observed in development of animals.

7. (a) Discuss different patterns of Cleavage accourting to amount and distribution of yolk.

Or

- (b) Briefly explain how dorsal- ventral, anterior, posterior and left and right axes are formed.

8. (a) Write an account on morphallaxis regeneration in Hydra with suitable diagram.

Or

- (b) Give brief notes on Proximate cause of aging.

9. (a) Give an account on types of Immunity.

Or

- (b) Distinguish between Primary and Secondary lymphoid organs.

10. (a) Write an essay on Major Histocompatibility Complex.

Or

- (b) Explain the concept and mechanisms of Autoimmune diseases.

PG-747

MZO-22

**M.Sc. DEGREE EXAMINATION —
DECEMBER, 2019.**

Second Year

Zoology

**BIOPHYSICS, BIOSTATISTICS AND COMPUTER
APPLICATIONS**

Time : 3 hours

Maximum marks : 75

PART A — (3 × 5 = 15 marks)

Answer any **THREE** questions out of **FIVE** questions.

1. Write a brief account on various Tracer isotopes.
2. Explain the principle and applications of Thin Layer Chromatography.
3. What is Primary data? Write briefly on the sources of Primary data.
4. Calculate the median for the given data.

Length of the leaves in cm.	0-10	10-20	20-30	30-40	40-50	50-60
Number of leaves	5	10	15	30	20	10

5. Describe any two input devices of a computer.

PART B — (4 × 15 = 60 marks)

Answer any FOUR questions out of FIVE questions.

6. Write a detailed account on NMR spectroscopy.
7. Describe the principle and applications of
 - (a) SDS-PAGE and
 - (b) Immunoelectrophoresis.
8. Give an account on diagrammatic and graphical representation of data.
9. The price of petrol at petrol stations in City1 and City2. The data, in dollars per litre, are given below.

City1	3.96	3.76	4.00	3.91	3.69	3.72
City2	3.97	3.81	3.52	4.08	3.88	3.68

Find the Standard deviation of each City's prices. Which city has the more consistently priced petrol? Give reasons for your answer.

10. Discuss the applications of computers in biology.

PG-748

MZO-23

**M.Sc. DEGREE EXAMINATION –
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Second Year

Zoology

BIOTECHNOLOGY AND MICROBIOLOGY

Time : 3 hours

Maximum marks : 75

PART A — (5 × 5 = 25 marks)

**Answer the following question of either / or type,
Each answer should not exceed 500 words.**

1. (a) Give a brief note on thermodynamic laws.

Or

- (b) Explain the properties of natural light.

2. (a) Comment on Agarose Gel Electrophoresis.

Or

- (b) Briefly explain Isoelectric focussing.

3. (a) Give a short note on Classification of Data.

Or

(b) Give Brief account on Tabulation of data.

4. (a) Calculate the mean for the Following data.

Marks : 0-10 10-20 20-30 30-40 40-50 50-60

Frequency 22 38 46 34 20 18

Or

(b) Give a short account on Standard Deviation.

5. (a) What are the input and output devices in computer.

Or

(b) Write short notes on computer memory and its types.

PART B — (5 × 10 = 50 marks)

Answer the following question of either / or type,
Each answer should not exceed 1000 words.

6. (a) Discuss in details the types and properties of Natural Radiations.

Or

(b) Give an illustrated account of AA and PE Spectroscopy.

7. (a) Give detail account of principles of SDS-PAGE and its application.

Or

- (b) Elaborately discuss about Gas Liquid Chromatography.

8. (a) Explain the importance and usefulness of statistics in Biological Sciences.

Or

- (b) Write about different types of graphs and its uses.

9. (a) Define Correlation and explain its types with suitable examples.

Or

- (b) Write an account on the simple linear regression.

10. (a) Give an account on software and hardware in computer.

Or

- (b) Present a brief account internet and its uses in Modern world.

PG-749

MZO-24

**M.Sc. DEGREE EXAMINATION –
DECEMBER 2019.**

Second Year

Zoology

AQUACULTURE

Time : 3 hours

Maximum marks : 75

PART A — (5 × 5 = 25 marks)

Answer ALL questions.

1. (a) Describe briefly about importance of aquaculture.

Or

- (b) Describe briefly on the nursery ponds.

2. (a) Briefly describe about the advantages of monoculture.

Or

- (b) Write short notes on algal culture.

3. (a) Write short notes on environmental problems associated with prawn culture.

Or

- (b) Illustrate the advantages of ornamental fish culture.

4. (a) Describe briefly on water quality management in aquaculture.

Or

- (b) Briefly explain about crustacean fish diseases.

5. (a) Explain briefly about the role of local fish market in fish export.

Or

- (b) Write short notes on the harvesting of fish.

PART B — (5 × 10 = 50 marks)

Answer ALL questions.

6. (a) Describe in detail on the scope of aquaculture in India.

Or

- (b) Write a detailed account on designing of fish farm.

7. (a) Explain in details about the fish farming integrated with other culture system.

Or

- (b) Write a detailed account on the culture system extensively used in aquaculture.

8. (a) Describe elaborately the oyster culture and its advantages.

Or

- (b) Describe in detail on prawn culture and its advantages.

9. (a) Give a detailed account on production of artificial fish feed.

Or

- (b) Illustrate the very common viral and fungal diseases in fish culture and its treatment.

10. (a) Describe in detailed on canning and freezing of fish product.

Or

- (b) Describe the role of quality control norms in exporting fishes.

PG-750

MZO-25

**M.Sc. DEGREE EXAMINATION —
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Second Year

Zoology

ENVIRONMENTAL BIOLOGY AND EVOLUTION

Time : Three hours

Maximum marks : 75

PART A — (5 × 5 = 25 marks)

Answer ALL questions.

1. (a) Describe briefly about ecological pyramid.
Or
(b) Describe briefly on food chain with an example.
2. (a) Briefly describe about the competition and predation in the community.
Or
(b) Write short notes on community succession.

3. (a) Write short notes on conventional energy resources.

Or

- (b) Explain briefly about noise pollution.

4. (a) Describe briefly on mullerian mimicry

Or

- (b) Briefly explain about De Vries theory of mutation.

5. (a) Explain briefly about the clone and peripheral population.

Or

- (b) Write short notes on genetic evolution.

PART B — (5 × 10 = 50 marks)

Answer ALL questions.

6. (a) Describe in detail on the characteristic features of sandy coastal ecosystem.

Or

- (b) Write a detailed account on adaptation of benthic organisms in marine ecosystem.

7. (a) Explain in details about the energy flux in a community.

Or

- (b) Write a detailed account on the biogeochemical cycle of organic nutrients

8. (a) Describe elaborately the biological indicators and its role in pollution monitoring

Or

(b) Describe in detail on renewable and non-renewable resources

9. (a) Give a detailed account on lamarckism

Or

(b) Explain in details about the polymorphism in evolution

10. (a) Describe in detailed on the polyploidy mechanisms in evolution

Or

(b) Describe the role of fossil evidence in evolution studies.
