R7303

Sub. Code
509301

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

Third Semester

Zoology

DEVELOPMENTAL BIOLOGY

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Totipotency
2. Fate map
3. Spermatogenesis
4. Vitellogenesis
5. Cell motility
6. Germ layers
7. Regeneration
8. Metamorphosis
9. Cell death
10. Teratogens

Part B (5 × 5 = 25)

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

11. (a) Give an account on cell differentiation.

Or

(b) Write short note on morphogenic gradients.

12. (a) Differentiate the polarity and symmetry of eggs.

Or

(b) Write short note on chemodifferentiation.

13. (a) Write short note on cell migration.

Or

(b) Discuss in detail about cell affinity.

14. (a) Explain the process of organogenesis.

Or

(b) Describe the formation of vulva in *Ceanorhabditis elegans*.

15. (a) Discuss the activation of gene during development.

Or

(b) What are the factors involved during teratogenesis?

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on basic concepts of embryology.

17. Explain in detail about the process of fertilisation.

18. Write an essay on gastrulation in mammals.

19. Write an essay on limb development and regeneration in vertebrates.

20. Discuss in details about mechanism of Apoptosis.

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R7304	Sub. Code 509302

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

Third Semester

Zoology

ECOLOGY AND CONSERVATION BIOLOGY

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Ecosystem
2. Energy flow
3. Detritivores
4. Nutrient cycle
5. Life tables
6. Eutrophication
7. Methenoglobinemia
8. IUCN
9. Indicator species
10. Extinction

Part B (5 × 5 = 25)

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

11. (a) Discuss pond as an example of ecosystem.

Or

(b) What are biogeochemical cycle? Describe the following cycles in nature:

(i) Oxygen cycle

(ii) Carbon cycle

12. (a) Distinguish between natality and mortality of population.

Or

(b) What do you mean by population dispersion?

13. (a) Mention chief characteristics of a lotic habitat.

Or

(b) Describe the ecological features and adaptations of freshwater habitat.

14. (a) Write an essay on Environmental pollution.

Or

(b) What are different pollutants of soil? Suggest methods to check soil pollution.

15. (a) Write an account of India Biodiversity.

Or

(b) What do you meant by 'Keystone species' with suitable example?

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Give an account on biogeochemical cycles.

17. Write an essay on population ecology.

18. List the abiotic factors of fresh water ecosystem. Describe the effects of total dissolved solids and total suspended solids on fresh water ecology.

19. Define pollution. Explain the causes and consequences of water pollution and state some remedial measures for the abatement of pollution.

20. What do you meant by 'Biodiversity hostspot'? Give an account on the role of Sanctuaries and National parks in wildlife conservation.

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R7305	Sub. Code
	509303

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

Third Semester

Zoology

EVOLUTION

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is phylogeny?

2. Define Co-speciation?

3. What is adaptive radiation?

4. Define carbon dating?

5. Explain molecular clock?

6. Explain neutral evolution?

7. Describe natural selection?

8. What is geological time scale?

9. What are fossils?

10. Describe mass extinction?

Part B (5 × 5 = 25)

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

11. (a) Describe briefly about is used in Phylogenetics?

Or

(b) Explain about Evolutionary significance of protein?

12. (a) Differentiate Prokaryotes and Eukaryotes with example?

Or

(b) Explain about branch of tree like?

13. (a) Define natural selection?

Or

(b) Discuss about genetic variation?

14. (a) Describe geographical isolation?

Or

(b) Explain reproductive isolation?

15. (a) Comment on culture evolution?

Or

(b) Give short notes on social evolution?

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Differentiate between gene duplication and divergence?

17. Explain genetic variation in population?

18. Elaborate the speciation, causes & modes?

19. Described the different type of fossils and its significance?

20. Elaborate geological (Carbon) dating methods?

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R7306	Sub. Code
	509304

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

Third Semester

Zoology

FISHERY BIOLOGY AND AQUACULTURE

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Classification of fin fishes
2. Age and growth of fin fishes
3. Endangered species
4. HCCP
5. MPEDA
6. Mono-sex aquaculture
7. BMP in Coastal Aquaculture
8. SPR brooders
9. Race way aquaculture
10. Coastal Aquaculture Authority

Part B (5 × 5 = 25)

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

11. (a) Write note on modern marine fishing crafts.

Or

(b) Morphometric and meristic characters of fin and shell fishes.

12. (a) Describe physical and biochemical methods to examine the freshness of fish.

Or

(b) Explain the *in-situ* and *ex-situ* methods of fishery resources conservations.

13. (a) Describe fin and shell fish brood stock collection methods.

Or

(b) Describe the selection criterion for candidate species for aquaculture purposes.

14. (a) Explain the bio-security measures to prevent disease outbreak in hatcheries and grow-outs.

Or

(b) Describe the varies live feeds used in Indian aquaculture.

15. (a) Describe pellet and farm made feed production technology for aquaculture.

Or

(b) Explain open and closed aquaculture systems.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write an essay on food and feeding habits of any five fin and shell fishes.

17. Write an essay on fish processing technologies.

18. Explain different aquaculture types according to the stocking density.

19. Write an essay on the management of microbial diseases in production ponds and hatcheries.

20. Write an essay on integrated aquaculture.

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R7307

Sub. Code
509506

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

Third Semester

Zoology

ENTOMOLOGY

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Hemimetabolous

2. Phylogeny of insects

3. Insect's digestion

4. Endocrine organs of insects

5. *Pectinophora gossypiella*

6. Sucking pest

7. Biological control of insects

8. Insect predators

9. Vector insects

10. Mosquito-borne diseases

Part B (5 × 5 = 25)

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

11. (a) Write short note on the general characters of insects

Or

(b) Distinguish between apterygota and pterygota

12. (a) Briefly explain the nervous system of insects

Or

(b) Explain briefly on the endocrine system of insects.

13. (a) List out the cotton field insects and its damage.

Or

(b) Discuss the pest of stored products.

14. (a) Describe the microbial mediated pest management

Or

(b) Brief the potential components for IPM

15. (a) Table the useful insects and their applications

Or

(b) How does vector carry diseases? Explain

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Give an account on the molecular evolutionary relationship between the insect groups

17. Compare the digestive systems of insects.

18. Deliver an account on the stored grain pests and their control measurements.

19. Discuss about the chemical control of insects.

20. Explain files transmitted diseases and its control measures.

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