

M.Sc. Zoology Semester – III
Core Paper ZOL301 : Biology of Chordates

Answer in short :-

1. Define Dipnoi?
2. Name the orders that include flightless birds?
3. What is Holocephali?
4. Write any four characters of flightless birds?
5. Define Chiroptera?
6. Give two example of Metatherians?
7. Define adaptive radiation.
8. What is Agnathostomata?
9. What is significance of endostyle in protochordates?
10. What is carapace and plastron?

Answer in detail :-

1. Illustrate the general characters and outline classification of Amphibia.
2. Write short notes:
 - (A) Prototheria
 - (B) Cyclostomata
3. Describe sense organs in Reptiles?
4. Explain origin, evolution and adaptive radiation of Amphibia?
5. Write short notes on:
 - (A) Skull types (Diapsida) in Reptiles
 - (B) Dinosaurs
6. Explain the differences between cartilaginous and bony fishes?
7. Discuss the origin of birds?
8. White a note on evolution of viviparity?
9. Give detailed description of any two flightless birds?
10. Give a detail account on flightless birds?

M.Sc. Zoology Semester-III
Core Paper ZOL302: Genes and Differentiation

Answer in short :-

1. What is the difference between signal and cue?
2. What are neural crest cells?
3. Name any two stem cell disorder?
4. What is the role of vectors in gene therapy?
5. What are gap genes?
6. Name testis determining genes?
7. Define transplantation?
8. What is the role of bicoid and nanor mRNA in axis specification in Drosophila?
9. Define Potency?
10. What is the difference between induction and competence?

Answer in detail :-

1. Describe haematopoiesis?
2. Give a brief amount on gene therapy?
3. Differentiate between the following:
 - (A) Totipotency and Pleuripotency
 - (B) Embryonic and Adult stem cell
4. Give a detailed account on various developmental constraints.
5. Describe environmental sex determination with suitable example.
6. Write short notes on :
 - (A) Teratogenic agents
 - (B) Heterochrony
7. Describe in detail malformation and disruption with suitable examples?
8. Give a detail account on tetrapod limb development?
9. What is cleavage? Enumerate different types of cleavage with examples?
10. Explain Anterior / Posterior genetics of axis specification in Drosophila?

M.Sc. Zoology Semester – III
ZOL 303: Evolution

Answer in short: -

1. What is Altruism?
2. Define the term of phenotypic plasticity?
3. Write different modes of speciation?
4. Give two characteristic for deep sea adaptation.
5. Define extinctions and mass extinctions.
6. Give an example of seasonal (temporal) isolation.
7. Define speciation?
8. What is transgressive variation. Give an example.
9. What do you understand by Polymorphism?
10. What is micro-evolution?

Answer in detail :-

1. Differentiate between Punctuated Equilibrium and phyletic gradualism.
2. Give a detailed account on Human evolution?
3. Explain Altruism and Kin selection?
4. Define Adaptation? Explain aerial and desert adaptation?
5. Write short notes on-
 - (A) Mutation
 - (B) Neo Darwinism
6. What is isolation? Describe the mechanism of isolation.
7. Give an account of the theory of Natural selection. What is the criticism against this theory?
8. Define species? Write a detail account on concept of species.
9. Define coevolution? Describe the various modes of coevolution.
10. What is migration? Discuss migration with respect to mutation.

M.Sc Zoology Semester- III

ZOL-3D02

(Environmental Biology: Population Ecology, Environmental Adaptations and Environmental Disasters)

Answer in short: -

1. Define life table.
2. What is non overlapping generation?
3. Define ecological optima.
4. Write about phoresis.
5. Define disaster with example.
6. Define carrying capacity and population growth.
7. What is Secondary aquatic adaptation?
8. What do you understand by population pyramid?
9. Define tectonic plates.
10. Explain greenhouse effect.

Answer in detail :-

1. Write about different population indices.
2. Write notes on:-
 - a) Secondary aquatic adaptations.
 - b) Eco physiological adaptations.
3. Write note on:-
 - a) prey- predator relationship.
 - b) Insect plant interactions.
4. Write on

a) El Niño

b) La Niña

5. How many types of survivorship curves are found in populations? Draw age structure diagrams and explain.

6. Explain belt and quadratic transacts with examples and diagrams.

7. Write a note on insect plant interaction, give suitable examples.

8. Answer any two:-

a) Difference between tornado, hurricane, typhoon, cyclone and anti cyclone.

b) Explain earthquake and Tsunami.

c) ozone depletion causes and its effects.

9. Draw diagram showing zones of sea, write on deep sea adaptations.

10. Define trade winds, write full form of NOAA, name three phases of ENSO? Describe cool and warm episodes, how are they measured?

M.Sc. ZOOLOGY Semester- III

ZOL3-D03

(Environmental Biology, Natural Resources, Biodiversity, Wildlife and Conservation Biology)

Answer in short: -

1. Define sustainable use of resources.
2. What is the mission of WWF?
3. What was the major cause of chipko movement?
4. Expand BNHS and also mention its headquarters.
5. What is the major role of Zoo Authority of India?
6. Define natural resources.
7. What is red data Book?
8. What is DNA Bank?
9. Name any four biosphere reserves.
10. What is biodiversity management?

Answer in detail :-

1. Write short note on:
 - a) Non renewable sources of energy
 - b) forest resource
2. Define biodiversity. Write a detailed note on biotechnology and biodiversity.
3. Give a brief account on:
 - a) biological diversity act of India
 - b) critically endangered Indian animals.
4. Write an account of strategies for biodiversity conservation. What steps have been taken to conserve biodiversity at international levels?
5. Write short notes on:
 - a) Eco tourism
 - b) Hotspot of Indian biodiversity
6. Write notes on
 - a) Nuclear energy
 - b) Geothermal energy
7. Name 10 national parks of India.
8. Explain methods of radio telemetry
9. Describe pollen-spore banks and DNA banks.
10. Write notes on CITES and TRAFFIC.