

DEPARTMENT OF ZOOLOGY
QUESTION BANK
+3 2ND Year Science Zoology Honours
3rd semester, CORE-5
Diversity and distribution of chordate

Part –i

[each question carry 2 marks]

Short notes:-

1. Define proto chordate .
2. Define Hemichordate.
3. Define urochordate.
4. Define cephalochordate.
5. State two general characters of hemichordate.
6. State two general characters of urochordate.
7. State two general characters of cephalochordate.
8. Define retrogressive metamorphosis.
9. State two significance of tornaria larva.
10. State two significance of tadpole larva.
11. State fundamental chordate characteristics.
12. State two advance features of vertebrates over protochordates.
13. State two general characteristics of cyclostomatous.
14. State two peculiar characters of myxine .
15. State two peculiar characters of petromyzon.
16. State two general characters of chondrichthyes.
17. State two general characters of osteichthyes.
18. Define migration.
19. What is osmo regulation ?
20. Define parental care ?
21. What are uses of scales ?
22. State two general characters of amphiba.

23. State two characters of order Anura.
24. State two characters of order- urodela.
25. State two general characters of reptilia.
26. State two characters of order – squamata.
27. State two characters of order- crocodilia.
28. State two distinguishing feature of reptiles .
29. What is venom ?
30. What is neurotoxin ?
31. State two general characters of Aves.
32. State two characters of order – columbiformes.
33. Define flight adaption .
34. What is pneumatic bone?
35. State two adaptive characters of birds which helps in flight ?
36. What is connecting link ?
37. State two reptilian characters of archacopteryx.
38. State two Avian characters of archacopteryx
39. State two characters of sphenodon.
40. What is immigration?
41. What is latitudinal migration ?
42. What is longitudinal migration?
43. What is altitudinal migration ?
44. What is irregular migration ?
45. State two causes for migration .
46. State two advantages of migration.
47. State two general characters of mammals.
48. State two characters of order primates.
49. State two peculiar characters of prototheria ?
50. State two peculiar characters of metathera ?
51. What is dentition ?
52. What is dental formula of rabbit?
53. Define adaptive radiation ?
54. What is zoogeographical realm.
55. State two crocodila characters of sphenodon.

Part –ii

[Each question carry 10marks]

Long answer type:-

1. State ten general characters of proto chordates ?
2. State ten general characters of urochordates ?
3. State ten general characters of hemichordates ?
4. State ten general characters of cephalo chordates?
5. Explain structure and significance of tornaria larva?
6. What is retrogressive metamorphosis ? describe the process of retrogressive metamorphosis in herdmania ?
7. Explain echinoderm theory of origin of chordates ?
8. State advanced features of nertebrates over protochordate.
9. State general characters of cyclostomata ?
10. Classify cyclostomes up to classes ?
11. Describe structural peculiarities of petromyzon ?
12. Describe structural peculiarities of myxine ?
13. Discuss affinities of petromyzone ?
14. Discuss affinities of myxine ?
15. State ten general characters of chondrich thyes?
16. State ten general characters of osteichthyes ?
17. Classify chondrich types up to order ?
18. Classify osteichthyes up to order ?
19. Write an essay on migration on fishes ?
20. Describe various methods of parental care in amphibian?
21. Describe various methods of parental care in pisces ?
22. State ten general characters of amphibia?
23. Classify amphibia up to orders ?
24. State ten general characters of reptilia ?

25. Classify reptilia up to orders ?
26. Discuss affinities of sphenodon ?
27. Explain poison apparatus & mechanism of biting in snakes ?
28. State 10 general characters of aves ?
29. Classify Aves up-to order ?
30. Describe flight adaption in birds ?
31. Write an essay on migration in birds ?
32. State ten general characters of mammalian ?
33. Discuss affinities of prototheria ?
34. Discuss affinities of metatheria ?
35. Write an essay on dentition in mammals ?

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Zoology Honours

3rd Semester, Core – 6 (Human Physiology)

Short Questions (1 mark each):

1. Define tissue.
2. What is the function of epithelial tissue?
3. Blood is which type of tissue?
4. What is the function of actin and myosin?
5. Give an example of exocrine gland.
6. What is ossification?
7. What is resorption?
8. What is action potential?
9. What is synapsis?
10. Describe the function of neuromuscular junction.
11. What is reflex action?
12. What is reflex arc?
13. Nissil's granules are found in which cell?
14. Which nerve innervates the eye?
15. What is the function of ear drum?
16. What is the function of skeletal muscle?
17. What is sarcolemma?
18. What is the function of a motor neuron?
19. What is I and A band?
20. Write the characteristics of muscle twitch.
21. What is tetanus?
22. What is the outer covering of testis?

23. Spermatogenesis takes place in which cell of testis?
24. Ovum produced from which cell of the ovary?
25. Which hormone secreted from corpus leuteum?
26. Sertoli cells are present in which organ of the male reproductive system?
27. Estrogen and progesterone secreted from which part of the ovary?
28. Define puberty.
29. Give 2 methods of contraception.
30. The gametic cells are haploid or diploid?
31. Define hormone.
32. What is hypothalamus?
33. Pituitary gland develops from which part in embryo?
34. Anterior part of the pituitary gland secretes how many hormones?
35. Neurohypophysis secrete how many hormones?
36. What is the function follicular stimulating hormone?
37. What is the ACTH?
38. Where is parathyroid gland located?
39. Which one is known as emergency hormone?
40. What is the raw material for the synthesis of thyroxin hormone?
41. Give 2 important functions of thyroxin hormone.
42. Which cell of pancreas secretes insulin?
43. Give the function of glucagon.
44. Which chemical compound acts like a second messenger?
45. Steroid hormones secreted from which gland?
46. Releasing factors are synthesized from which part?
47. Describe feedback control in one sentence.
48. What is homeostasis?
49. Chorionic gonadotropic hormone secreted from which part of the body?
50. What is circadian effect?

Long Questions (8 marks each):

1. Describe structure and function of epithelial tissue.
2. Describe structure and function of connective tissue.
3. Describe structure and function of muscular tissue.
4. Describe structure and function of nervous tissue.
5. Describe the process of ossification and resorption.
6. Discuss the process of nervous conduction in non-myelinated nerve fibre.
7. Discuss synaptic transmission with suitable diagram.
8. Write an essay about reflex action and reflex arc.
9. Describe the physiology of hearing.
10. Describe the physiology of vision.
11. Discuss the ultra-structure of skeletal muscle.
12. Give an account of molecular and chemical basis of muscle contraction.
13. Describe the histology of male reproductive system.
14. Describe the histology of female reproductive system.
15. Give an account of structure and function of pituitary gland.
16. Give an account of structure and function of thyroid gland.

17. Give an account of structure and function of pancreas gland.
18. What are the hormones? Classify the hormones briefly.
19. Write an essay about the mode of hormone action.
20. Give an account of signal transduction pathway.

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Zoology Honours

3rd Semester, Core – 7 (Comparative Anatomy)

Short Questions (1 mark each):

1. Which glands are present in the eyelids and spread their oily secretion on eyeball?
2. Long tail of peacock serves for which function?
3. Study of the external features of animals called as _____.
4. Which vitamin is synthesized in the presence of sunlight in the skin of mammals?
5. Dermis of vertebrate is derived from which cell layer?
6. Melanocytes are located in which part?
7. Poison secreted by paratoid gland of amphibian is _____.
8. Digital cornifications are modifications of _____.
9. Which glands are present in alimentary canal of mammals?
10. What is the function of accessory respiratory organ in fishes?
11. What is close circulation?
12. What is open circulation?
13. Two chambered heart found in which vertebrate?
14. Three chambered heart found in which vertebrate?
15. Four chambered heart found in which vertebrate?
16. Define arterioles.
17. Define venioles.
18. Define capillaries.
19. Which blood vessel pours blood into right atrium from the heart wall?
20. What is mesonephric kidney?
21. What is metanephric kidney?
22. What is pronephrous kidney?
23. Which one is the functional unit of kidney?
24. Oviduct of vertebrates is the modified form of _____.
25. Copulatory organs are _____ in anamniotes.
26. Mullerian duct in adult male is _____.
27. Adult neural system is derived from which layer of embryo?
28. Which part connects two cerebral hemispheres in mammalian brain?
29. The cavity of mid-brain is called _____.
30. Fourth ventricle found in which part of the brain/
31. A mass of cell bodies within the grey matter of brain or spinal cord called as _____.
32. Where the bipolar neurons are formed?
33. Central nervous system of vertebrates derived from which part?

34. Function of restiform bodies in elasmobranchs is _____.
35. What are ganglia?
36. How many cranial nerves found in mammals?
37. How many spinal nerves found in mammals?
38. What is acetylcholine?
39. What is archenteron?
40. What is the function of vermiform appendix in grazing animals?
41. Bursa fabricii found in which animal?
42. Which organ secretes bile?
43. How many lobes present in right lungs of human?
44. Which are very thin branches of respiratory tree of mammals?
45. What is the function of air sac in birds?
46. Which is the respiratory organ of embryonic vertebrates?
47. What are chemoreceptors?
48. What are mechanoreceptors?
49. What are tendons?
50. What are ligaments?

Long Questions (8 marks each):

1. What is integument? Describe the integument and its derivatives in vertebrates.
2. Give a comparative account of integument of reptiles, birds and mammals.
3. Describe the exoskeletal structure in vertebrates.
4. Discuss jaw suspensorium in vertebrates.
5. Give a comparative account of stomach in different vertebrates.
6. Give a comparative statement of digestive system in birds and mammals.
7. Give a comparative account of respiratory organs in vertebrates.
8. Write an essay on accessory respiratory organs in fishes.
9. Discuss the general plan of circulation in vertebrates.
10. Give an account of evolution of heart.
11. State a comparative account of aortic arches in vertebrates.
12. Give general account of evolution of kidney in vertebrate series.
13. Discuss types of mammalian uteri.
14. Describe the evolutionary process of urinogenital ducts in vertebrates.
15. Give a comparative account of brain of vertebrates.
16. Describe the brain of a lizard and compare it with that of a mammal.
17. State the comparative account of the brain of frog and rabbit.
18. Discuss the comparative account of autonomic nervous system in vertebrates.
19. What are receptors and classify them.
20. Give a general account of teeth.

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Zoology Honours

4th Semester, Core – 8 (Biochemistry)

Short Questions (1 mark each):

1. What are carbohydrates?
2. What are non-reducing sugars?
3. What carbohydrate is taken as a reference for writing the configuration of others?
4. The non-carbohydrate moiety found in glycosides is known as _____.
5. What are glycolipids?
6. Which lipids are not the structural components of biological membranes?
7. The cyclic rings of steroids are known as _____.
8. What are amino acids?
9. Name two sulfur containing essential amino acids.
10. The bonds forming the backbone of protein structure are called _____.
11. How many molecules of ATP are produced when a molecule of acetyl CoA is oxidized?
12. Which molecule is a connecting link between HMP shunt and lipid synthesis?
13. Which hormone lowers the cAMP concentration in liver cells?
14. Protein that serves as a primer for glycogen synthesis is _____.
15. Name five vitamins required by pyruvate dehydrogenase complex.
16. Which enzyme catalyzes the substrate level phosphorylation?
17. Name the key enzymes of glycolysis.
18. What is TCA cycle?
19. What is the significance of HMP shunt?
20. What is glyconeogenesis?
21. What are ketone bodies?
22. Which enzyme controls cholesterol synthesis by feedback mechanism?
23. How is α -oxidation different from β -oxidation?
24. The fatty acid that is commonly found in the C₂ of triacylglycerols is _____.
25. Which lipoprotein is involved in the reverse transportation of cholesterol?
26. Where are ketone bodies synthesized?
27. Which hormone inhibits the formation of ketone bodies?
28. Where is urea synthesized?
29. Write the general chemical formula of amino acids.
30. What is transamination?
31. All transaminases require _____ as their coenzyme.
32. What is deamination?
33. What is transamination?
34. Which hormones inhibit the catalytic action of glutamate dehydrogenase?
35. How many amino groups are present in a urea molecule?
36. What are the enzymes used in urea cycle?

37. Citrulline
38. Glucogenic amino acid
39. Ketogenic amino acid
40. Sulphur containing amino acid
41. Where is ATP synthase located?
42. What is an enzyme?
43. The non-protein part of a holoenzyme is called _____.
44. What are allosteric enzymes?
45. What is an active site?
46. Give the equation of Michel-Mention equation
47. Lock and key theory proposed by _____.
48. Induced fit theory proposed by _____.
49. What are inhibitors?
50. What are uncouplers?

Long Questions (8 marks each):

1. Describe the structure and properties of monosaccharides with reference to glucose?
2. Describe the classification of amino acids along with their structures.
3. Discuss the saturated and unsaturated fatty acids of biological importance, along with their structures.
4. Define polysaccharides and describe the structures of 3 homopolysaccharides.
5. Describe briefly the metabolism of glucose-6-phosphate.
6. Give an account of glycogen metabolism.
7. Discuss the synthesis of glucose from non-carbohydrate sources.
8. Describe the hexose monophosphate shunt and add a note on its significance.
9. Write a brief note on ketogenesis and its regulation.
10. Describe in detail the extramitochondrial synthesis of fatty acids.
11. Give an account of fatty acid oxidation.
12. Write about the types, characteristics and metabolism of lipoproteins. Add a note on lipoprotein disorders.
13. Describe the reactions in the synthesis of urea.
14. Describe the fate of carbon skeleton of glucogenic and ketogenic amino acids.
15. What is catabolism? Describe various catabolic mechanisms of amino acids.
16. What are enzymes? Describe their classification and nomenclature.
17. Describe the structure and function of ATP synthase.
18. Write an account of various factors affecting enzymatic activity.
19. What are coenzymes? Write a brief note on the role of coenzymes in enzyme action.
20. Describe the structure and function of respiratory chain.

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Zoology Honours

4th Semester, Core – 9 (Cell Biology)

Short Questions (1 mark each):

1. What are prokaryotes?
2. What is a virus?
3. What are eukaryotes?
4. What is mycoplasma?
5. Viroids
6. Virosoids
7. Prions
8. Daniel-Davson model
9. Active transport
10. Tight junction
11. Desmosomes
12. Gap junction
13. Plasmodesmata
14. Who discovered ER?
15. Give the function of ER.
16. Give three functions of Golgi bodies.
17. What is the function of RER?
18. What is the function of SER?
19. Lysosome contains which enzyme?
20. Oxysomes
21. Mitochondrial DNA
22. Peroxisomes
23. Function of intermediate filament
24. Microtubules
25. Micro-filaments
26. Nuclear pore complex
27. Packing of DNA
28. Function of nucleolus
29. Centromere
30. Centriole
31. Signaling molecule
32. Receptors of signaling molecule
33. G-phase
34. S-phase
35. How cell cycle is regulated?
36. What is signal transduction?
37. What is apoptosis?
38. What is cancer?
39. Types of cancer

40. Causes of cancer
41. Tumors
42. Carcinogens
43. Effect of cancer
44. Chemotherapy
45. Radiotherapy
46. Carcinoma
47. Prevention of cancer
48. Lymphoma
49. Sarcoma
50. What is metastasis?

Long Questions (8 marks each):

1. What is plasma membrane? Describe various models of plasma membrane.
2. Describe the structure of a typical eukaryotic cell.
3. Describe various types of junctions present between cells.
4. What are viruses? Classify and describe the structure of different types viruses.
5. Describe the ultra-structure of a mitochondrion.
6. Write a brief note on Golgi apparatus.
7. Describe the mechanism of vesicular transport.
8. Describe the ultra-structure of endoplasmic reticulum.
9. Describe the ultra-structure of nucleus.
10. Write an essay on structure and function of nucleolus.
11. Describe the structure and chemical composition of microtubules and microfilaments.
12. What is nuclear envelope? Describe the structure of nuclear pore complex.
13. What is cell division? Discuss various types of cell division that occur in living organisms.
14. What are the basic activities that occur during mitosis? How does mitosis differ in animal and plant cells?
15. What is cytokinesis? Describe the process of cytokinesis in plant and animal cells.
16. Describe the mechanism of regulation of cell cycle.
17. What is apoptosis? Describe the extrinsic and intrinsic pathways of cell death.
18. Give an account of apoptosis.
19. What is cancer? Describe the types of cancer and its causes.
20. What is tumor? Describe the process of metastasis in animal cell.

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Zoology Honours

4th Semester, Core – 10, (Genetics)

Short Questions (1 mark each):

1. State the principle of dominance.
2. What is dihybrid cross?
3. Why did Mendel opt pea plant for his experiment? Give any two reasons.
4. What is codominance?
5. Define epistasis.
6. What are lethal genes?
7. In a cross, if the phenotypic and genotypic ratios are same; then which type of inheritance is it exhibiting?
8. What is test cross?
9. Give the phenotypic and genotypic ratio of a dihybrid cross.
10. Define pleiotropy.
11. What is incomplete linkage?
12. Why do incompletely linked genes undergo crossing over?
13. Why is linkage significant?
14. What is meiotic crossing over?
15. What are linkage groups? How many linkage groups are there in human male?
16. Why is crossing over necessary?
17. What is cytological mapping?
18. How are chromosome maps different from genetic maps?
19. What is multiple crossing over?
20. What is interference and coincidence?
21. Define mutation.
22. What is somatic mutation?
23. What is aneuploidy?
24. When does mutation generally take place?
25. What is backward mutation?
26. How is induced mutation different from spontaneous mutation?
27. What is translocation?
28. What are mutagens?
29. Name two diseases caused due to change in chromosome number.
30. What are base analogues?
31. What are sex-linked genes?
32. What are sex-influenced genes?
33. Give two examples of X-linked inheritance.
34. What is sexual dimorphism?
35. Define phylogenetic inheritance.
36. Which systems are used to determine the sex of following organisms – Grasshopper, Drosophila, Butterfly.
37. What are quantitative traits?
38. What is transgressive variation?
39. Which type of variation does quantitative traits exhibit?

40. What is heterogametic sex?
41. Define cytoplasmic inheritance.
42. What are plasmagones?
43. The aggregation of extranuclear genetic material in an organism is called _____.
44. Which type of inheritance is exhibited by asexually reproducing organisms?
45. What is somatic segregation?
46. Why is cytoplasmic inheritance considered as a deviation of Mendelian laws?
47. What is maternal effect?
48. Define mitochondrial inheritance.
49. What happens if kappa particles are introduced into sensitive strain of paramecium?
50. Coiling pattern of shell in snail is controlled by the genotype of _____ parent.

Long Questions (8 marks each):

1. State and prove law of segregation and law of independent assortment.
2. How is codominance different from incomplete dominance? Explain with suitable example.
3. Discuss sex linked inheritance with suitable example.
4. What are the lethal genes? Describe lethal genes by considering one example from each of the following - plants, animals and humans.
5. Define linkage and crossing over. How are they related to each other? Describe with convenient examples.
6. Describe the phenomenon of linkage by giving suitable examples. Why is linkage an exception to Mendel's second law?
7. Elaborate the mechanisms of crossing over.
8. Write a brief note on somatic cell hybridization.
9. What is polyploidy? What are different kinds of polyploids? Explain with suitable examples.
10. What is gene mutation? Describe various types of gene mutation with suitable examples.
11. What are mutagens? Describe how UV light and chemicals act as mutagens.
12. Write an essay on various methods used to detect mutations.
13. What is sex determination? Describe various examples of sex chromosomal mechanisms of sex determination.
14. What is sex linked inheritance? Elaborate various modes of sex linked inheritance with suitable examples.
15. Describe phylogenetic inheritance and transgressive variation with suitable examples.
16. Briefly explain sex influenced and sex limited inheritance with convenient examples.
17. Describe cytoplasmic inheritance. Give an account of the criteria for cytoplasmic inheritance.
18. Describe how Chlamydomonas exhibit resistance towards antibiotics.
19. Elaborate mitochondrial mutations with suitable examples.
20. Explain the mechanism of maternal effect with suitable examples.