UG/I/ZOOL/H/I/18

2018

ZOOLOGY

[Honours]

PAPER – I

Full Marks : 90

Time : 4 hours

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

GROUP – A

Answer any **two** questions from the following : 15×2

1. (*a*) What is pseudopodia ? Classify pseudopodia and mention their functions.

   (*b*) Discuss two main theories to explain amoeboid movement with suitable diagram.

Explain the role of microfilament in amoeboid movement.

(*c*) What is rowing ? Discuss the role of Cilia in movement. $(1+2)+(3\times2+3)+(1+2)$

2. (*a*) Name the phylum to which "Jelly fish" belongs to. Mention its 4 unique characters. State the functions of Cnidoblast cell. Describe different types of spicules with diagram.

(*b*) What is polymorphism ? In which class of Cnidaria polymorphism is most common ? Briefly describe the polymorphism of that group with suitable diagram.
$(1+2+2+3)+(2+1+4)$

3. (*a*) Mention different types of "fangs". State the name of muscles, bones and type of teeth involved in biting mechanism of snake with diagram. Describe their biting mechanism.

(*b*) Name the major flight muscles of birds with diagram. $(2+5+3)+5$

4. (*a*) State the distribution of Dipnoi. Write down primitive degenerative and advanced features of Dipnoi (at least 2 each). Discuss with diagram the phylogenetic tree of Dipnoi.

   (*b*) What is "Test" of Ascidia ? Why Ascidia is called "Sea Squirt" ? Define Endostyle of Ascidia and state its function.

   (2+3+5)+(1+1+3)

5. (*a*) Write down the functions of Water vascular system. Give a typical structure of water vascular system of Echinoderm with diagram. Provide a labelled diagram of choanocyte. State the course of water flow in syconoid system.

   (*b*) What is "pseudocoelome" ? Describe the successive stages of development of *Ascaris* with diagram. State sexual dimorphism of *Ascaris*. (2+4+2+2)+(1+3+1)

6. (*a*) What do you mean by the term "Monotremata" ? Write at least five important anatomical characters of "Monotremata" with scientific names of two living species.

(*b*) What is "Aerodynamics" ? Describe structure of a typical flight feather of a flying bird with diagram. Name different types of feathers. (1 + 4 + 2) + (2 + 4 + 2)

GROUP – B

Answer **five** questions from the following : 8 × 5

7. State the difference between (any *four*) : 2 × 4

   (*a*) Platyhelmenthes and Aschelmenthes.

   (*b*) Insecta and Crustacea.

   (*c*) Polychaeta and Oligochaeta.

   (*d*) Mollusca and Echinodermata.

   (*e*) Gastropoda and Bivalvia.

8. (*a*) What is Accessory Respiratory Organ (A.T.O) of fish ? Describe structure and function of A.R.O in *Anabas* sp.

   (*b*) Describe the structure of book gill of prawn. (1 + 3) + 4

9. Write taxonomic characters of *four* of the following taxa [At least 4 characters each] : 2×4

(*a*) Apoda
(*b*) Squamata
(*c*) Metatheria
(*d*) Hirudinea
(*e*) Holothuroidea
(*f*) Anthozoa.

10. State systematic position of following (any *four* upto class) with at least *two* identifying characters each : 2×4

(*a*) *Loligo* sp.
(*b*) *Madrepora* sp.
(*c*) *Antedon* sp.
(*d*) *Limulus* sp.
(*e*) *Ascaris* sp.
(*f*) *Aphrodite* sp.

11. Write short notes on *four* of the following : 2×4

(*i*) Green gland

(*ii*) Cnidoblast

(*iii*) Lasso cells

(*iv*) Parasitic adaptation of *Fasciola*

(*v*) Aristotle's lanterm

(*vi*) Statocyst of Mollusca

(*vii*) Pectin of birds.

12. Discuss with diagram, the modification of Aortic arches in *Rana* sp. and *Lepidosiren* sp. 2 × 4

13. State systematic position (upto class of non-chordates and upto order of chordates) of *four* of the following aimals using two characters each : 2 × 4

(*a*) Silver fish

(*b*) Sea urchin

(*c*) Sea horse

(*d*) Sea hare

(*e*) Sea mouse

(*f*) Cuttle fish.

14. What is progressive and retrogressive metamorphosis ? Mention the progressive and retrogres-

sive changes during the larval development of Ascidia. Give evolutionary and taxonomic significance of ascidian tadpole. 2 + 4 + 2

GROUP – C

Answer **five** questions from the following : 4 × 5

15. State the location and function of : 1 × 4

(*a*) Swim bladder

(*b*) Book gill

(*c*) Organ of Jacobson

(*d*) Organ of Bojanus.

16. Distinguish between– 2 + 2

(*a*) Monocular and Binocular vision

(*b*) Pronephric and Metanephric kidney.

17. "Birds are glorified reptiles"–Justify the quote. 4

18. What are Coxal gland, Anal style, Pronotum and Tergum ? 4

19. (*a*) Differentiate between mesenchyme and mesoglea.

(*b*) What are urostyle and uropygeal glands ? 2+2

20. Define "Torsion". State the advantages and disadvantges of torsion. 1+3

21. Write functions of Radula, Omatidium, Keel and Hemocoel. 4

22. State the differences between Neoteny and Paedogenesis. Give example of each. 4

23. Write a short note on echolocation in bat. 4