UG/I/ZOOL/H/I/15

2015

ZOOLOGY

[**Honours**]

PAPER – I (New)

Full Marks : 90

Time : 4 hours

Answer **all** questions

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

[NEW SYLLABUS]

GROUP – A

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

1. (*a*) What are pseudopodia ? Classify pseudopodia and mention their function.

(*b*) Discuss two main theories to explain amoeboid movement with suitable diagram. Critically 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*) What are book gill and book lungs ? Describe the structures involved in the terristrial mode of respiration of any insect. Schemetically represent the mode of function of major respiratory organs. Name the respiratory pigment present in the blood of cockroach and mention its function.

(*b*) Who coin the term Annelida and why ? Classify Phylum Annelida upto subclasses with at least three characters and two examples each. $(1+3+2+2)+(1+4+2)$

3. (*a*) What are the basic differences between water canal system and water vascular system ? Describe a model canal system

with suitable diagram taking scypha as a model. Provide a schematic diagram showing water flow in a syconoid system.

(*b*) What are coral and coral reef ? Describe major distribution range of coral reef. Write the importance of coral reef and indicate the major threats of coral reef.

(2 + 4 + 2) + (2 + 2 + 3)

4. (*a*) Name the primary and secondary hosts of liver fluke. Describe the lifecycle of a liver fluke with suitable diagram.

(*b*) What are torsion and detorsion ? Describe chiastoneury and zygonury with suitable diagram. Mention the significance of torsion in gastropods. (2 + 4) + (2 + 5 + 2)

5. (*a*) What do you mean by the term 'Monotremata' ? Write at least six important anatomical characters of Monotremata with scientific names of two species.

(*b*) Name major exoskeletons of bird. Describe structure of a typical flight feather of a flying bird with suitable diagram. State functions of different types of feathers. (1+4+2)+(2+4+2)

6. (*a*) Write one most important identifying character of cephalochordata and urochordata. Write two characters of order Rhynchocephalia. Write geographical distribution of Sphenodon. Write at least eight peculiar characters of *Sphenodon.* Write a critical note on the systematic position of *Sphenodon.*

(*b*) Explain the mechanism of echolocation in microchiropteran bat. (1 + 1 + 1 + 4 + 3) + 5

GROUP – B

Answer any **five** questions of the following : 8 × 5

7. State systematic position (upto calss) of any *four* of the following and justify your answer by giving at least 2 diagnostic characters of each taxonomic category and give suitable examples : 2 × 4

(*a*) Sea cucumber
(*b*) Silverfish
(*c*) Sea pen
(*d*) Sea mouse
(*e*) Both sponge
(*f*) Devil fish.

8. Place following (any *four*) into their respective class, sub-class, and order with reasons mentioning at least two characters for each taxonomic category (Amphibea and Reptelea upto order ; upto sub-class for the rest). 2×4

(*a*) *Moloch horridus*
(*b*) White beaked vulture
(c) Gangetic Dolphin
(*d*) *Rhacophorus*
(*e*) *Anabus*
(*f*) *Salpa.*

9. Compare the brain of fish, reptile and mammal in respect to 8

(*a*) Maninges
(*b*) Ventricle
(*c*) Cerebrum
(*d*) Cerebellum.

10. What do you mean by connecting link and missing link ? Write four annelidan and four arthropod characters of *Peripatus*. 'Peripatus is not now a days placed under phylum Arthropoda' — Justify your answer. $2 - 2 + 4$

11. State three widely accepted theory of coral reef formation with suitable diagram. 8

12. What is protandry and hermaphrodite ? Describe different parts of male and female reproductive system of earthworm with its proper location. Mention how copulation and cocoon formation occur in earthworm. 2 + 4 + 2

13. Mention occurrance and function of the following organs : 4 × 2

(*a*) Mushroom gland
(*b*) Corpora cardiaca and Corpora alata
(*c*) Pulmonary sac
(*d*) Gizzard
(*e*) Anal style and anal cercus
(*f*) Nematocyst
(*g*) Diaphragm
(*h*) Endostyle.

14. What is progressive and retrogressive metamorphosis ? Mention the progressive and retrogressive changes during the larval development of Ascidea. Give evolutionary and taxonomic significance of ascedian tadpole. 2 − 4 − 2

15. Give four major morphological differences between Lamprey and Hagfish. What is Ammocoetes larva ? Give anatomical structure of Ammocoetes larva. Give major events of metamorphosis during life cycle of above animal. $2 + 1 + (3 + 2)$

16. What is pronephric, mesonephric and metanephric kidney ? Write their distribution in animal kingdom. What is claspar and Bidders organ ? $3 \times 2 + 2$

GROUP – C

Answer any **five** questions of the following : 4×5

17. Write functions of any *two* with distribution : 4

(*a*) Mantle and ink gland
(*b*) Mehli's gland and Lurer's Canal
(*c*) Foraman of Panizzae and foraman ovalae.

18. Differentiate following (any *two*) : 4

(*a*) Heart of fish and human.
(*b*) Mesenchyme, mesoglea and mesoderm.
(*c*) Insecta and Arachnida.
(*d*) Feathers of running bird and flying bird.

19. Distinguish between : 2×2

(*a*) Apoda. Urodela

(*b*) Bony fish and cartilagenus fish (internal character).

20. Mention different types of following with example : 2×2

(*a*) Type of nephredia of annaeled

(*b*) Fangs of snake.

21. What is soaring, hovering, gliding and perching regarding aerodynamics of flight. 1×4

22. (*a*) What is hydrostatic skeleton ?

(*b*) What is Webberian ossicle ?

(*c*) Name three species of Dipnoi

(*d*) What is diastema ? 2+2+2+2

23. (*a*) Name two major phyla whose all members are marine :

(*b*) Name limbless amphibia and flying amphibia.

(*c*) Write the phylum of *Plasmodium* and *Opalina*.

(*d*) Name first true coelomate and first true triploblastic phyla. 1 × 4

24. Write functions of the following : 1 × 4

(*a*) Conus arteriosus
(*b*) Strigmata
(*c*) Hallux
(*d*) Internal nare.

25. Name the phylum of the animals where following cell types are found : 1 × 4

(*a*) Pinacocyte
(*b*) Flame cell
(*c*) Chlorogogin cell
(*d*) Plasmocyte.

26. (*a*) What is commissure ?
(*b*) What is Tidemann's body
(*c*) What is carapace and plastorn ?
(*d*) What is monocondylic skull ? 1 × 4
