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UG/I/ZOOL/H/I/16 (New)

2016

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

[NEW SYLLABUS]

GROUP – A

Answer two questions from the following :

15 × 2

1. (a) State the name of kingdom and subkingdom where *Paramoecium* belong and give reason. Mention the names of phyla of unicellular organism with one example each.

(Turn Over)

(b) What is slipper animalcule ? Illustrate the structure of cilia. Write the function of macronucleus and micronucleus of *Paramecium*. Describe the steps of conjugations of *Paramecium*.

(2+4)+(1+3+1+4)

2. (a) Name the phylum where sea anemone belongs. Mention its 4 unique characters. State different functions of cnidoblast cell. Mention different types of spicule.

(b) Define polymorphism. In which class of Cnidaria polymorphism is most common ? Describe the polymorphism of that group with suitable diagram. (1+2+2+3)+(2+1+4)

3. (a) What is tunicin and stolon of *Ascidia* ? Why *Ascidia* is called 'Sea Squirt' ? Define endostyle ? Explain typhlosole.

(b) State the distribution of Dipnoi. Write down primitive, degenerative and advanced features of Dipnoi (2 each). Discuss with diagram the phylogenetic tree of Dipnoi.

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

4. Classify snakes on the basis of fang. State the name of muscle, bone and type of teeth involved in biting mechanism of snake. Describe the steps of biting mechanism of snake with suitable diagram. Name the major flight muscles of birds with diagram. 2+3+5+5
5. State the affinities of *Balanoglossus* with chordate and nonchordate. Give examples of 2 Indian hemichordates. Name the larval form of *Balanoglossus*. State the anatomical peculiarities of *Petromyzon*. What is epipubic bone? 5+2+1+5+2
6. (a) Write the functions of water vascular system. Give a typical structure of water vascular system of Echinoderm. State the course of water flow in a syconoid system. Provide a labelled diagram of choanocyte.
- (b) Describe the successive stages of development of *Ascaris* with suitable diagram. State sexual dimorphism of *Ascaris*. (2+4+2+2)+(4+1)

GROUP – B

Answer five questions from the following : 8 × 5

7. State difference between (any four) : 2 × 4
- (a) Cnidaria and Ctenophora
 - (b) Prototheria and Theria
 - (c) Insecta and Crustacea
 - (d) Trematoda and Cestoda
 - (e) Polychaeta and Oligochaeta.
8. (a) What is accessory respiratory organ (A.R.O.) of fish ? State structure and function of A.R.O. in Singi.
- (b) Describe the structure of book gill of prawn. (1+3)+4
9. Write identifying characters of *four* of the following taxa [4 characters each] : 2 × 4
- (a) Gastropoda
 - (b) Holothuroidea

- (c) Cephalochordata
- (d) Metatheria
- (e) Lepidosauria
- (f) Apoda.

10. State systematic position (upto class of nonchordate and upto order of chordate) of *four* of the following animals using 2 character each: 2×4

- (a) Sea pen
- (b) Sea urchin
- (c) Sea horse
- (d) Sea mouse
- (e) Sea pen
- (f) Sea hare.

11. State how many aortic arches develop during embryogenesis. Discuss modification of aortic arches in Anura, Lungfish and Mammal. $2 + (3 \times 2)$

12. State systematic position of following (any *four* upto class) with *two* identifying character each : 2×4

- (a) *Octopus* sp.
- (b) *Hydra* sp.

(6)

- (c) *Hirudeneria* sp.
- (d) *Limulus* sp.
- (e) *Planaria* sp.
- (f) *Beroe* sp.
- (g) *Euplectella* sp.

13. Match the following :

$\frac{1}{2} \times 8$

(a)

A	B
Axolotl	Starfish
<i>Pavo</i> sp.	Syrinx
<i>Sphenodon</i>	Porifera
<i>Clarias</i>	Long barb
Elytra	Third eye
Arthrobranch	Balance
Tidemann's body	Respiration
Pinacocyte	Neoteny

(b) Mention briefly functions of the following : 4

- (i) Fat body of cockroach
- (ii) Typhlosole of earthworm
- (iii) Viteline gland of liverfluke

- (iv) Ootype of *Fasciola*
- (v) Seminal vesicle of earthworm
- (vi) Pecten of bird
- (vii) Single occipital condyle of bird
- (viii) Jacobson's organ.

14. Name national aquatic animal of India. What is echolocation? Mention the process of echolocation of that aquatic animal. Write the mechanism of echolocation in bat. 1+1+3+3

15. Differentiate the following : 2 × 4

- (i) Foramen magnum and Foramen monro
- (ii) Polyp and Medusa
- (iii) Gastropoda and Bivalvia
- (iv) Horn and Antler.

16. What is thebasian valve and foramen of panizzae? How many cranial are found in nerve Amphibia, Reptilia, Avis and Mammalia? Name the type of kidney in above mentioned animal group. Mention aerodynamical principle are applied in pigeon. 2+2+2+2

GROUP – C

Answer five questions from the following :

17. State distribution and function of ctenidea, pseudocoel, Hemocoel and keel. 4 × 5
1 × 4
18. Function of (i) flame cell (ii) ommatidium (iii) osphradium (iv) Statocyst. 1 × 4
19. What are connective and commissure ? Give example of a flying fish, flying Amphibia, flying Reptilia, flying Mammalia. 2+2
20. Name the following : $\frac{1}{2} \times 8$
- (i) First triploblastic phylum.
 - (ii) First true bilaterally symmetrical phylum.
 - (iii) First true territorial class of vertebrate.
 - (iv) First deuterostomea phylum.
 - (v) First enterocoelomate phylum.
 - (vi) First phylum where nerve cell appear.

(vii) Phyla where no tissue system is formed in Animalia.

(viii) Phylum of first enterozoa.

21. Write location and function of following (any four) : 1×4

- (i) Blubber.
- (ii) Rossa ovalis.
- (iii) Hepatic portal.
- (iv) Hair horn.
- (v) Lanugo.
- (vi) Pin feather.
- (vii) Vibrissae.

22. What is atlas, dentary, marsupium and occipital condyle ? 1×4

23. What is osculum, tergum, coxal gland and pygostyle ? 4

24. What is mesoglea, colloblast cell, ephyra larva and metagenesis ? 4

25. (i) Who told, "birds are glorified reptile" ?
(ii) Who coin term protozoa ?
(iii) Who recently change the scientific name of toad ?
(iv) Who coin the term Annelida ? 1×4
26. State the number of following : $\frac{1}{2} \times 8$
- (i) Number of aortic arches of mammal.
(ii) Number of cranial nerve of snake.
(iii) Number of cervical vertebrae of giraffe.
(iv) Number of chamber of heart of crocodile.
(v) Number of abdominal segment of cockroach.
(vi) Number of gill pair of shark.
(vii) Number of tail flight feather of pigeon.
(viii) Number of layer of meninges of bird.
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