

2015
ZOOLOGY — HONOURS
Third Paper
(Unit – I)
Full Marks – 50

The figures in the margin indicate full marks

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

Answer **Question No. 1** and **any four** from the rest

1. Answer **any five** of the following : 2×5

- (a) What is Hatschek's nephridium?
- (b) State two points of morphological differences between lizards and snakes.
- (c) Why running birds cannot fly?
- (d) Define paedomorphosis.
- (e) What is rete mirabilia? State its significance.
- (f) Name the muscles associated with poison apparatus in snakes.
- (g) State the basic principle of echolocation in bats.
- (h) What is filter feeding?
- (i) State the role of notochord in ascidian tadpole.

2. Place the following animals (**any four**) into their respective class and subclass/order with reasons mentioning at least two characters for each taxon (up to order for Amphibia and Reptilia and up to subclass for the rest) : 2½×4

- (a) *Myxine* sp. (b) *Hippocampus* sp. (c) *Ichthyophis* sp.
- (d) *Hemidactylus* sp. (e) *Ornithorhynchus* sp. (f) *Macropus* sp.

3. (a) What is Labyrinthine organ?
(b) Describe the morphological structure of Hemibranch of a Chondrichthyes.

- (c) What are the factors involved in neoteny? 2+4+4

4. (a) Describe the structure of pharynx of *Branchiostoma* sp. with suitable diagrams.
- (b) Write, in brief, the epidermal derivatives in mammals. (3+2)+5
5. (a) Draw and describe the modifications of aortic arches in birds and mammals.
- (b) Describe the structure and function of omasum and abomasum in ruminant stomach of a mammal. 6+4
6. (a) Briefly describe the hormonal and behavioural changes that occur before the onset of migration in birds.
- (b) State the role of swim bladder as a hydrostatic organ.
- (c) Give an account of the structural organisation of the kidney of an anamniotic animal. 4+2+4
7. (a) Describe the structure of a typical mammalian teeth.
- (b) Mention the structural peculiarities of a typical reptilian heart with proper illustrations. Comment on the significant modifications observed in avian heart over reptilian heart. 3+(4+3)
8. Distinguish between *any four* of the following : $2\frac{1}{2}\times 4$
- (a) Archaeornithes and Neornithes
- (b) Scale of a fish and scale of a reptile
- (c) Artiodactyla and Perissodactyla
- (d) Quill and covert feather
- (e) Diphyccercal tail and heterocercal tail
- (f) Proteroglyphous and Opisthoglyphous fang.