Chapter-4 : Animal Kingdom

1. **(c)**
2. **(c)** Sea cucumber belongs to phylum Echinodermata.
3. **(d)** **4.** **(c)** **5.** **(c)** **6.** **(c)**
7. **(a)** Blood is colourless in insects as it has no respiratory pigment. Therefore, it has no role in O_2 transport. O_2 is transported through tracheae.
8. **(a)** In Cephalochordate, notochord extends from head to tail and is persistent throughout their life. In Urochordata, notochord is present only in larval stage restricted to tail.
9. **(c)** Adult echinodermata (starfish) show pentamerouradial symmetry which larvae show bilateral symmetry.
10. **(d)** Animals belonging to Phylum Porifera are mostly marine except a few which are found in fresh water, e.g., *Spongilla*, *Euspongia*.
11. **(a)**
12. **(b)** In Osteichthyes skin is covered with cycloid/ctenoid scales. They are mostly oviparous.
13. **(a)**
14. **(a)** Coelenterates have radial symmetry. Aschelminthes are pseudocoelomates. Molluscs do not show metamerism. Sponges are diploblastic.
15. **(c)** Except a few, only mammals possess seven cervical (neck) vertebrae.
16. **(b)**
17. **(c)** Chondrichthyes are the cartilaginous fishes with a flexible skeleton made of cartilage rather than of bone.
18. **(b)**
19. **(b)** Prawn, scorpion and locusta belong to phylum Arthropoda. This is the largest phylum of Animalia, over two-thirds of all named species on earth are Arthropoda. Phylum is named so due to presence of jointed appendages (arthros = jointed, poda = appendages) in body of members of this phylum.
20. **(c)** **21.** **(a)** **22.** **(c)** **23.** **(a)**
24. **(c)** **25.** **(b)** **26.** **(d)** **27.** **(b)**
28. **(d)** **29.** **(c)** **30.** **(a)** **31.** **(b)**
32. **(c)** **33.** **(d)** **34.** **(c)** **35.** **(c)**
36. **(b)**
37. **(c)** The animals in which the coelom is absent are called acoelomates, for example flatworms (*Planaria*). In them the space between ectoderm and endoderm is filled with parenchyma derived from mesoderm.
38. **(a)** The central body cavity of sponges is called spongocoel. Their body is porous. The inhalent pores are called ostia and exhalent pores are known as oscula. The body of a sponge is organised in such a manner as to form a complex system of pores and canals. This system is called canal system. Water flows in through ostia to spongocoel and comes out to exterior *via* osculum. The continuous water current flowing through the canal system is very important for the life of a sponge. It brings in food and oxygen and carries away carbon dioxide, nitrogenous wastes and reproductive bodies. Thus the canal system helps the sponge in nutrition, respiration, excretion and reproduction.

39. **(b)**

40. **(a)** Leech possesses a ventral central nervous system. Scorpion has a dorsal heart. Pharyngeal gill slits and post-anal tail are characteristic features of chordates. Chameleon is a chordate, so it possesses pharyngeal gill- slits in embryonic stage. Octopus is a non-chordate.

41. **(a)** *Balaenoptera* (Whale) and *Delphinus* (Dolphin) are aquatic mammals. *Equus* (Horse) is terrestrial and *Pteropus* (Bat) is a flying mammal.

42. **(c)** Sponges have excellent regeneration power so each piece develop into complete individual.

43. **(b)**

44. **(d)** Because they are belong to the class mammalia.

45. **(c)** Penguin, Kiwi and Ostrich all belong to class Aves of chordata (*i.e.,* birds) and they do not give birth to their young ones, they are oviparous while Kangaroo, Hedgehog, Dolphin, Loris all belong to class mammalia and are viviparous.

46. **(d)** **47.** **(b)** **48.** **(a)**

49. **(d)** Figure 'C' is of *Octopus* (mollusc) and figure 'D' is of scorpion (arthropod). Both have true coeloms. Figure A is of tapeworm (platyhelminth) and Figure B is of *Aurelia* (cnidarian). Both are acoelomates.

50. **(d)** Sea horse and flying fish are fishes and fishes are cold-blooded animals *i.e.* the temperature of their body varies with the environment. *Ornithorhyncus* is oviparous, crocodile has 4-chambered heart, *Ascaris* and *Ancylostoma* do not show metameric segmentation.

51. **(a)** Frog (Amphibian) is a cold blooded animal *i.e.,* its body temperature varies with the temperature of the environment. Pigeon (Aves) is a warm blooded animal *i.e.,* its body temperature remains constant irrespective of the temperature of the environment. Wall lizard (Reptile) possesses dry and cornified skin. Earthworm (Annelid) is a monoecious animal *i.e.,* both male and female sex organs are present in the single individual.

52. **(d)**

53. **(b)** The embryo of animal I shows two germinal layers, ectoderm and mesoderm. This animal is diploblastic, it can be a poriferan or cnidarian. The embryos of all other animals have three germinal layers, the ectoderm, mesoderm and endoderm. These animals are triploblastic animals. They can be from phylum platyhelminthes to phylum Mollusca. Embryos I and II have no coelom, III has pseudocoelom and IV and V have true coelom. Coelom is a fluid-filled cavity that forms the main body cavity of animals. It is formed by splitting of the mesoderm. Therefore, embryos I and II can be of poriferans, cnidarians, ctenophorans or platyhelminthes; embryo III is of nemathelminthes; whereas embryos IV and V can be of annelids, arthropods or molluscs. Embryos of V shows internal divisions or segmentation in the body.
Embryo V, thus, is annelidan. And incomplete or blind gut is found in cnidarians and platyhelminthes. So, we can conclude, embryo I is of cnidaria, embryo II is of platyhelminthes, embryo III is of nemathelminthes, embryo IV is of arthropoda and embryo V is of annelida.

54. **(b)** During embryonic development, in reptiles, birds and mammals, embryo forms four membranes called embryonic membranes, chorion, amnion, allantois and yolk sac. Due to their occurrence, reptiles, birds and mammals are called amniotes. Fishes and amphibians do not have these membranes, hence they are called anamniotes. Milk producing mammary glands and hair are the characteristic features of mammals, whereas feather is of birds.

55. **(d)**