Solutions

S1. Ans.(a)

The correct answer is option no. (a), because annelids are true coelomate animals. Options (b), (c) and (d) are incorrect because poriferans are acoelomates, aschelminths are pseudocoelomates and

platyhelminthes are acoelomates.

S2. Ans.(a)

The correct option is option no. (a) as

- *Pterophyllum* is the scientific name for Angel fish.
- *Myxine* is the scientific name for Hag fish.
- *Pristis* is the scientific name for Saw fish.
- *Exocoetus* is the scientific name for Flying fish.

S3. Ans.(a)

The correct answer is option (a) as

A. Pleurobrachia – is a member of phylum Ctenophora.

B. Radula – is a rasping feeding organ present in phylum Mollusca.

C. Stomochord – Rudimentary structure similar to notochord found in the collar region of

members of phylum Hemichordata.

D. Air bladder – is found in Osteichthyes which provides them buoyancy.

S4. Ans.(b)

The correct answer is option no. (b()) as the features of non-chordates among the given statements are:

B. Notochord is absent.

D. Heart is dorsal if present.

E. Post anal tail is absent.

Statements A and C are features of chordates.

Hence, option (b) is correct and options (a), (c) and (d) are incorrect.

S5. Ans.(d)

(A) Contractile vacuoles are found in single-celled organisms like Amoeba (II). They help in osmoregulation by expelling excess water out of the cell. (B) A water vascular system is a unique characteristic of echinoderms such as Asterias (I), a genus of starfish. This system is involved in locomotion, feeding, respiration, and excretion.

(C) The canal system is characteristic of sponges such as Spongilla (III). It aids in the circulation of water for feeding, respiration, and excretion.

(D) Flame cells are part of the excretory system in platyhelminthes like Taenia (IV), commonly known as tapeworm. These cells function in osmoregulation and excretion.

S6. Ans.(a)

Radial symmetry is a type of symmetry where an organism can be divided into similar halves by more than two planes passing through the central axis. This type of symmetry is found in organisms that tend to meet their environment in all directions, such as aquatic animals.

S7. Ans.(a)

Chordates are defined by having certain specific anatomical features at some point during their development. The correct attributes of chordates are:

1. Presence of a dorsal, hollow nerve cord (not a mid-dorsal, solid and double nerve cord as mentioned in statement A)

2. Presence of a closed circulatory system.

3. Presence of paired pharyngeal gill slits.

4. Presence of a post-anal tail.

5. Presence of a notochord.

S8. Ans.(a)

1. Hair or fur: Mammals are the only animals that have hair. This hair helps to insulate the body to maintain a constant body temperature.

2. Mammary glands: These are glands that, in females, produce milk for the nourishment of young ones. This is a characteristic feature of all mammals and is, in fact, the feature that gives this group its name.

3. The presence of pinnae (external ears): Most mammals have pinnae that help to collect and direct sound waves into the ear.

S9. Ans.(d)

Only (d) is correct Chelone is a reptile. It has three chambered heart.

S10. Ans.(d)

Only (d) correct They have circular mouth without jaws and they migrate to fresh water for spawning.

S11. Ans.(c)

Is the correct answer as chitin forms the exoskeleton is arthropods and is found in fungal cell wall. N-acetyl glucosamine is the monomeric unit. Cellulose is a polysaccharide. Cutin is a derived lipid.

S12. Ans.(a)

Is the correct answer because all chordates are divided into three subphyla - Urochordata, Cephalochordata and Vertebrata. In subphylum Vertebrata, notochord is replaced by bony or cartilaginous vertebral column in adults. Therefore, all vertebrates are chordates but all chordates are not vertebrates.

S13. Ans.(a)

Metamerism-Annelida; Canal system-Porifera; Comb Plates-Ctenophora; Cnidoblasts- Coelen- terata

S14. Ans.(d)

Neophron (Aves) has hollow and pneumatic bones.

S15. Ans.(b)

Physalia-Portuguese man of war; Limulus-Living

Fossil; Ancylostoma-Hookworm; Pinctada-Pearl oyster

S16. Ans.(c)

Echinodermata are triploblastic and coelomate animal; Round worms have organ system level; water vascular system is a characterstics of

echinodermata

S17. Ans.(c)

- The notochord is exclusively found in the larval tail of urochordata.
- The notochord in cephalochordata stretches from head to tail and is present throughout life.
- Vertebrata, Tunicata and Cephalochordata are the three subphyla of Chordata.
- Central nervous system (CNS) is dorsal and hollow.

S18. Ans.(a)

Platyhelminthes are organ-level animals that are bilaterally symmetrical, triploblastic and

acoelomate.

S19. Ans.(d)

- Cyclostomes have an extended body with 6-15 pairs of respiration gill slits.
- Air is found in the bones of fish belonging to the class Osteichthyes.
- Air bladder controls buoyancy.
- The sting of Trygon, a cartilaginous fish, is poisonous.

- The tail of chondrichthyes members is elongated with a heterocercal caudal fin

S20. Ans.(a)

- Locusta is a polyphagous, gregarious pest.
- Adult echinoderms (Asterias) have Radial symmetry while larvae have bilateral symmetry.
- Scorpions - Breathe via their book lungs.
- Bioluminescence is a prominent feature of ctenophores (Ctenoplana).

S21. Ans.(b)

- Petromyzon - Lamprey
- Pteropus - Flying fox
- Penguin- Aptenodytes
- Angel fish – Pterophyllum

S22. Ans.(d)

Platyhelminthes are organ-level animals that are bilaterally symmetrical, triploblastic and acoelomate.

Echinoderm larvae are bilaterally symmetrical, whereas adult echinoderms are radially symmetrical.

The development of free-swimming larva is indirect.

Hemichordates have a cylindrical body with an anterior proboscis, a collar and a lengthy trunk.

Aves are warm-blooded, direct-development creatures.

S23. Ans.(a)

Annelida have bilateral symmetry and organ-system level body organisation. They are coelomate animals that are triploblastic, metamerically segmented.

S24. Ans.(d)

During the embryonic period, members of the vertebrata subphylum have a notochord. In adulthood, the notochord is replaced by a cartilaginous or bony vertebral column. Thus, all vertebrates are chordates, but all chordates are not vertebrates.

S25. Ans.(b)

- Pila is a type of mollusca. A file – similar to rasping - is contained in the mouth.
- The radula is a feeding organ.
- Bombyx is a symbiotic arthropoda. Bombyx excretes through tubules called malpighian tubules.
- Pleurobrachia is a ctenophore. Their body has eight rows of ciliated comb plates on the outside that aid in movement.
- Taenia is a platyhelminth, a parasitic worm. It contains specialised cells known as flame cells.
- Osmoregulation and excretion are aided by flame cells.

S26. Ans.(a)

The phyla Annelida, Arthropoda, and Chordata all have true segmentation. They are also true coelomates, with organ system level of organisation, bilateral symmetry.

S27. Ans.(a)

Annelids develop directly so, earthworms do not have a larval stage.

S28. Ans.(b)

Reptilians, like Chelone, are poikilothermic, meaning their body temperature fluctuates depending on the climate.

S29. Ans.(c)

Food is swallowed by birds and stored in their crop. The meal subsequently goes through the stomach and into the gizzard, where it might be ground with previously eaten stones.

S30. Ans.(c)

Choanocytes (collar cells) line the spongocoel (body cavity) and canals.

S31. Ans.(c)

Sharks and sting rays belong to the Chondrichthyes (cartilaginous fish) class whereas whales, dolphins

and seals are aquatic mammals that belong to the mammalia class.

S32. Ans.(a)

Horse – Equidae

S33. Ans.(c)

- Slits in the pharyngeal gills can be found in both hemichordates and chordates.
- Chordates are the only animals that have a notochord.
- Non-chordates have a distinguishing Feature called the ventral tubular nerve cord.

S34. Ans.(d)

The circulation is closed. Cyclostomes are marine creatures that travel to fresh water to procreate.

They die within a few days of spawning. After metamorphosis, their larvae return to the sea.

S35. Ans.(a)

Adult echinoderms have radial symmetry but their larvae have bilateral symmetry.

S36. Ans.(d)

The appendages of the prawn, centipede and grasshopper are joined.

S37. Ans.(d)

Cyclostomes have a sucking mouth with a circular shape jaws. Scales are missing from their bodies and they have paired fins.

Except for crocodiles (4 chambered), all reptiles have a three–chambered heart.

Except for platypus, all mammals are viviparous.

S38. Ans.(c)

Birds are oviparous, which means they develop directly.

Except for the oviparous Ornithorhynchus, all mammals are viviparous.

S39. Ans.(a)

Chondrichthyes are streamlined marine organisms with a cartilaginous endoskeleton.

Ornithorhynchus (Platypus)- Oviparous-Mammal

S40. Ans.(b)

The river dolphin is India's national aquatic animal; it can only be found in freshwater or brackish water.

S41. Ans.(c)

Except for parapodia, phylum-arthropoda has all three traits.

Nereis (an Annelid) has lateral appendages called parapodia that help them swim.

S42. Ans.(a)

The exoskeleton of arthropods which contains chitin and

mucopolysaccrides, is one of their most distinguishing features. Arthropods' success is linked to their hard exoskeleton which serves as an armour against predators and a barrier against desiccation in a variety of environments.

S43. Ans.(a)

Platypus (Ornithorhynchus) is an oviparous mammal.

S44. Ans.(d)

Mouth ventral; gills without operculum; skin with placoid scales, persistent notochord are the features

of cartilaginous fishes.

S45. Ans.(a)

Trichinella spiralis is a human endoparasitic worm that lives in the intestine. It is a viviparous creature.

Trichinella spiralis causes a condition known as trichinosis. Diarrhoea, nausea, abdominal pain, muscular pain and other symptoms can occur.

S46. Ans.(a)

The skeleton of sponges is usually made up of spicules (calcareous or silicious) or spongin fibres.

The spongocoel, or paragastric cavity, is shared by all sponges and is lined by flagellated choanocytes.

S47. Ans.(c)

Jawless vertebrates belong to the Cyclostomata class. They are saltwater animals that travel to fresh

water to procreate. Petromyzon, for example.

S48. Ans.(a)

Alternation of generation is seen in several cnidarians that have both polyp and medusa forms

(metagenesis).

S49. Ans.(c)

Planaria have a strong regeneration capability.

S50. Ans.(a)

Ctenophora, Echinoderms, and Cephalochordata are all marine animals but cnidaria are both fresh water and marine..

S51. Ans.(c)

Torpedo have electric organs that generate electricity.

S52. Ans.(c)

The phylum arthropoda includes silverfish.

S53. Ans.(b)

Petromyzon is an ectoparasite belonging to the cyclostomata class.

S54. Ans.(d)

The housefly, butterfly, tsetse fly and silverfish are all members of this class.

Arthropoda is a phylum of arthropods while Insecta is a class of insects.

S55. Ans.(d)

The phylum arthropods includes prawns, scorpions and locusts.