6. What are the peculiar features that you find in parasitic platyhelminthes?
Solution: Following are the peculiar features of parasitic platyhelminthes:

- The thick tegument (body covering) resistant to the host's digestive enzymes and anti-toxins.
- Adhesive organs like suckers in flukes and the hooks and suckers in tapeworms for a firm grip on or in the host's body.
- Loss of locomotory organs.
- Digestive organs are absent in tapeworms because digested and semidigested food of the host is directly absorbed' through the body surface.
- Reproductive system is best developed in parasitic flatworms.
- Parasitic flatworms, such as liver fluke and tapeworms perform anaerobic respiration.
- They possess a considerable osmotic adaptability, as they can successfully live in different media.

7. What are the reasons that you can think of for the arthropods to constitute the largest group of the animal kingdom?
Solution: Arthropods are most successful animals and constitute the largest group of the animal kingdom. They have conquered land, sea and air and make up over three fourth of currently known living and fossil organisms. They range in distribution from deep sea to mountain peaks. Thick, tough, non-living chitinous cuticle forms the exoskeleton which protects the organism from predators, help to withstand temperature upto 100°C or more and prevents water loss. They have ability to reproduce very fast and less time is needed for young ones to hatch from their eggs. Due to metamorphosis, there is less competition among larval and adult forms for food. Cockroaches can even survive nuclear radiations and poisoned earth. All these factors made arthropods the largest phylum among animals.

8. Water vascular system is the characteristic of which group among the following ?
(a) Porifera
(b) Ctenophora
(c) Echinodermata
(d) Chordata
Solution: (c) Echinodermata

9. "All vertebrates are chordates but all chordates are not vertebrates". Justify the statement.
Solution: Chordates are the animals that possess notochord (a stiff, supporting rod like structure present on the dorsal side) at some stage of their lives. Phylum Chordata is divided into three Subphyla: Urochordata or tunicata, Cephalochordata and Vertebrata. Subphyla Urochordata and Cephalochordata are often referred to as protochordates and are exclusively marine. In urochordata, notochord is present only in tail of larva and disappears in adults, while in cephalochordata, it extends from head to tail region and persists throughout the life. The members of Subphylum Vertebrata a possess notochord during the embryonic period and is replaced by a cartilaginous or bony vertebral column in the adult. Thus all

vertebrates are chordates but all chordates are not vertebrates.

10. How important is the presence of air bladder inPisces?
Solution: Bony fishes have a sac-like outgrowth, the swim bladder also called air bladder, that arises as an outgrowth from the dorsal wall of oesophagus. It is hydrostatic in function. It regulates buoyancy and helps them to swim up and down, thus preventing them from sinking. In some species air bladder also helps in respiration. It also serves as resonating chamber to produce or receive sound.

11. What are the modifications that are observed in birds that help them fly?
Solution: Birds have adapted to aerial mode of life through the following modifications:

- Body is streamlined and spindle shaped which minimise resistance to the wind.
- Body is covered with feathers. It reduces the friction, prevent loss of heat and help to maintain constant temperature.
- Forelimbs are modified into wings, which help during flight.
- Flight muscles are greatly developed
- Most of the bones are pneumatic, hollow and filled vvith air which makes the body lighter and helps in flight.
- Birds are warm-blooded. They maintain a high body temperature (40° - 46°C). This is necessary for flight.
- Heart is four-chambered and functions efficiently with double circulation.
- Air sacs are present which act as reservoir of air and helps in temperature regulation.
- Urinary bladder is absent (except in Rhea) and only one ovary is present which reduces the weight, which is essential for flight.

12. Could the number of eggs or young ones produced by an oviparous and viviparous mother be equal? Why?
Solution: No, the number of eggs or young ones produced by an oviparous and viviparous mother respectively cannot be equal. Oviparous mother lays large number of eggs, as the eggs are laid outside the body, so they are not protected from predators and harsh environmental conditions, and therefore destroyed. However in viviparous mother, eggs are not laid outside, but the embryos develop inside the mother and thus are protected from the outside harsh environment, thus, the number of eggs produced are less. Therefore, the number of eggs or young ones produced by an oviparous and viviparous mother respectively cannot be equal.

13. Segmentation in the body is first observed in which of the following?
(a) Platyhelminthes
(b) Aschelminthes
(c) Annelida
(d) Arthropoda
Solution: (c) Annelida

14. Match the following:

(a) Operculum	(i) Ctenophora
(b) Parapodia	(ii) Mollusca
(c) Scales	(iii) Porifera

(d) Comb plates	(iv) Reptilia
(e) Radula	(v) Annelida
(f) Hair	(vi) Cyclostomata and Chondrichthyes
(g) Choanocytes	(vii) Mammalia
(h) Gill slits	(viii) Osteichthyes

Solution:
(a) - (viii), (b) - (v), (c) - (iv), (d) - (i), (e) - (ii), (f) - (vii), (g) - (iii), (h) - (vi).

15. Prepare a list of some animals that are found parasitic on human beings.
Solution: List of some animals that are found parasitic on human beings :

Parasite	Nature Endoparasites	Organ
Taenia solium (Pork Tapeworm)	Endoparasites	Small intestine
Schistosoma (Blood fluke)	Endoparasites	Hepatic portal system and mesenteric blood vessels.
Ancylostoma duodenale (Hook worm)	Endoparasites	Small intestine
Wuchereria (Filarial worm)	Endoparasites	Lymph nodes and lymphatic vessels.
Enterobius (Pin worm)	Endoparasites	Colon, caecum or vermiform appendix

********** END **********