

## High Order Thinking Skills (HOTS) Question

**Q.1. Give two evidences that suggest molluscs have descended from annelids.**

**Ans.** (i) Molluscs do not have a metameric segmentation.

(ii) Neopilina- 'a living fossil', shows metameric segmentation. Besides, its trochophore larva has structural similarities to annelid trochophore larva. These two evidences, suggest that molluscs have descended from annelids.

**Q.2. What enables bony fishes to stay afloat at a particular depth without expending energy in swimming?**

**Ans.** (i) Bony fishes stay afloat at a particular depth without expending energy in swimming because their finned tail help in propulsion by lateral movements.

(ii) Paired lateral pelvic and pectoral fins function as breaks and balances during swimming.

(iii) The swim bladder is a buoyancy regulator. These characters enable a bony fish to stay at a particular depth without using energy in swimming.

**Q.3. What is cephalization?**

**Ans.** (i) Differentiation of a definite head at the anterior end is called cephalization.

(ii) It involves the concentration of nervous tissue (brain) and sense organs in the head.

(iii) This arrangement is an advantageous adjustment with the environment, as the anterior end of the moving animal is the first to encounter changes in the area, it is entering.

**Q. 4. Point out the differences between the following:**

**(i) Agnatha and Gnathostomata.**

**Ans.** Two classes of Gnathostomata.

(i) Differences between Agnatha and Gnathostomata

S.No.	Agnatha	Gnathostomata
(i)	Jaws are absent.	Jaws are present.
(ii)	Paired appendages absent.	Paired appendages present.
(iii)	Notochord persistent.	Notochord replaced by vertebral column.
(iv)	Single median nostril present.	Nostrils are paired.

(ii) Differences between Super class Pisces and Super class tetrapoda:

S.No.	Super class-Pisces	Super class-Tetrapoda
(i)	Fishes have paired appendages in the form of pectoral and pelvic fins.	Tetrapods have paired appendages in the form of five digitated limbs.
(ii)	They may possess an exoskeleton of dermal scales.	They may possess an exoskeleton of epidermal scales, feathers, or hair.
(iii)	Fishes respire by means of gills	Tetrapods respire by gills. Some amphibians respire by buccopharyngeal cavity,



		skin and gills.
<b>(iv)</b>	Heart is 2-chambered except lung fishes where heart is 3- chambered.	Heart is 3 or 4-chamered.
<b>(v)</b>	Fishes have internal ear.	Tetrapods may have internal and middle ear or internal, middle and external ear.