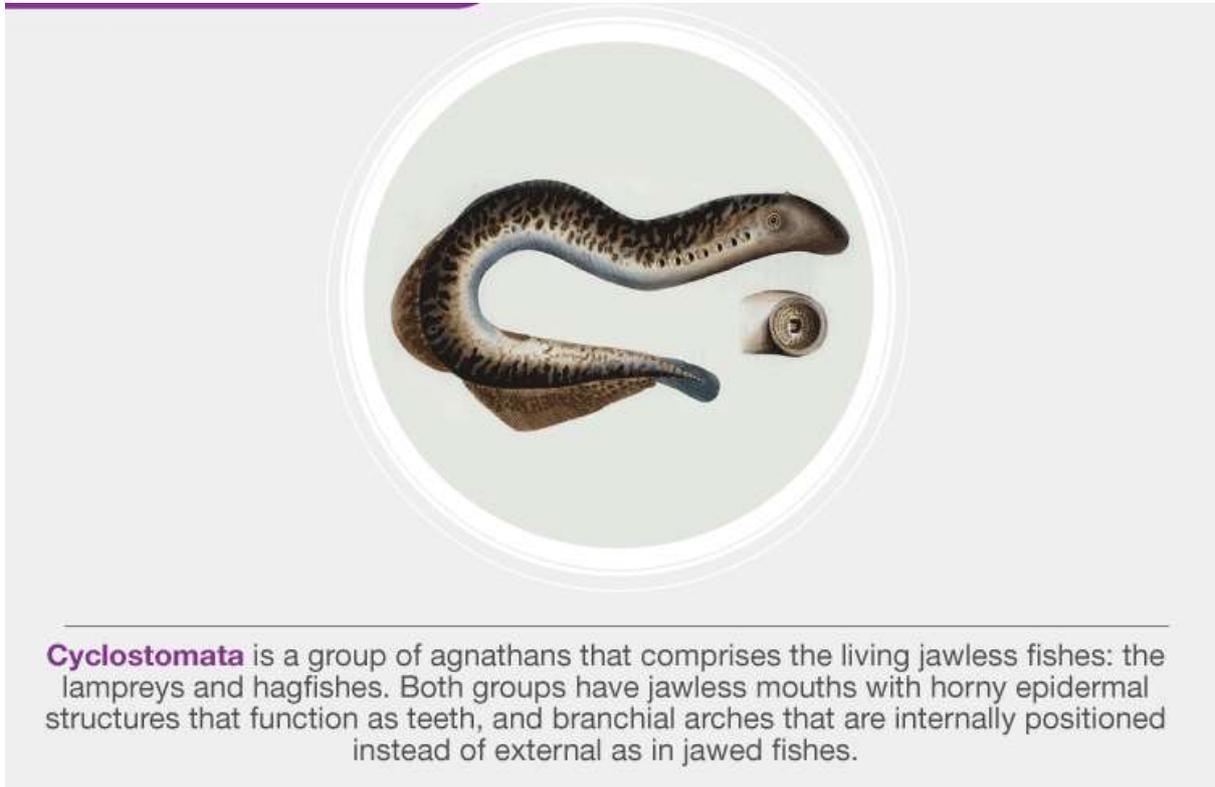


B.Sc Part II
ZOOLOGY (Subsidiary)
Paper 2
Classification of Cyclostomata

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CYCLOSTOMATA

The Cyclostomata are the modified and degenerate offshoot of the primitive vertebrate stalk. Due to their circular mouth, they are named Cyclostomata.



They are parasitic, usually feeding on fish in their adult stage. Morphologically, they resemble eels. They are known to be the only living vertebrates without true jaws, hence called Agnatha. Cyclostomata includes hagfishes and lampreys.

Characteristics of Cyclostomata

1. The body is round and elongated like an eel.
2. The paired fins are absent.
3. Median fins with cartilaginous fin rays.
4. No paired appendages.
5. The skin is soft and smooth, devoid of any scales.
6. Spleen is absent.
7. The exoskeleton is absent. The endoskeleton is cartilaginous with no bones.

8. The notochord is present throughout their lives.
9. The digestive system is devoid of any stomach.
10. The nostril is single and median.
11. The gills are five to sixteen in pairs.
12. The heart is two-chambered.
13. The brain is visible.
14. The lateral line acts as a sense organ.
15. About ten pairs of cranial nerves are present.
16. The sexes are separate. Some hagfish species are believed to be hermaphrodite.
17. A pair of mesonephric kidneys makes up the excretory system.
18. Development may be direct or indirect.
19. E.g., Petromyzon and Maxine.

CLASSIFICATION OF CYCLOSTOMATA

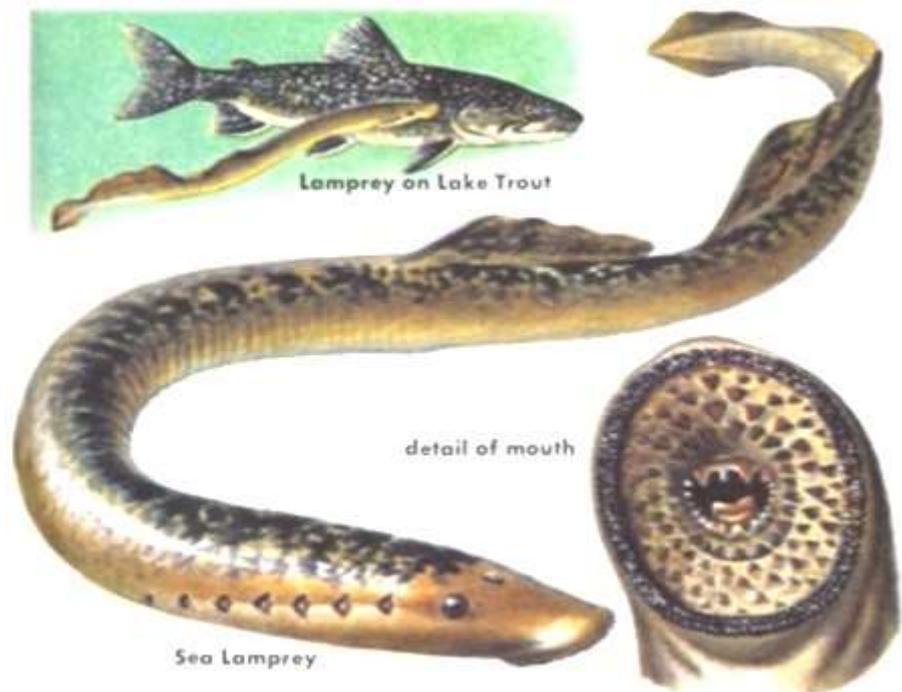
The class Cyclostomata is divided into two orders:

1) PETROMYZONIA AND 2) MYXINOIDEA

Order 1. Petromyzonia

- 1) Lampreys are included In this order.
- 2) The buccal funnel is suctorial and shows horny teeth.
- 3) The mouth is present in the buccal funnel.
- 4) The nasal sac is dorsal. It has no connection with the pharynx.
- 5) Eyes are functional.
- 6) Seven pairs of gill slits are present.
- 7) A well developed dorsal fin is present.
- 8) Branchial basket is complete.

- 9) Brain is well developed.
- 10) Pineal eye is well developed.
- 11) Ear has two semicircular canals.



Ex: 1. *Petromyzon*
(Sea-lamprey)) *Lampetra fluviatilis*.

Order 2: Myxinoidea

- 1) It includes the hag-fishes or slime eels.
- 2) Buccal funnel is absent.
- 3) The nasal sac opens into pharynx, through a canal.
- 4) Eyes are vestigial organs.
- 5) Dorsal fin is absent or very small.
- 6) Branchial basket is poorly developed.

- 7) Brain is primitive.
- 8) Pineal eye is reduced.
- 9) Ear has only one semicircular canal.
- 10) The hag-fishes are all marine.

Ex: 1. *Myxine glutinosa* Hag-fish or slime eel). 2. *Eptatretus* (*Bdellostoma*)

