

B.Sc First year Zoology (Honours)

Paper-1

Dr. Mirza Imteyaz Baig

General Characteristics of Phylum Mollusca:

1. Habitat:

They are mostly marine. Many, however, occur in fresh water and some even in damp soil.

2. Body Form:

The body of molluscs is un-segmented with a distinct head, muscular foot and visceral hump. Neopilina is a segmented mollusc.

3. Symmetry:

They usually show bilateral symmetry. In some molluscs like Pila, due to torsion (twisting) during growth, the adults become asymmetrical.

4. Shell:

Shell is secreted by mantle. It is made up of calcium carbonate. Shell may be external (e.g., most of molluscs), internal (e.g., slug, cuttle fish, squid) or absent (e.g., Octopus).

5. Mantle (Pallium):

It is a thin, fleshy fold of dorsal body wall more or less covering the body. It encloses a space, which is called mantle cavity (= pallial cavity).

6. Body wall:

Single layered epidermis is usually ciliated. Muscles are un-stripped and occur in bundles.

7. Body cavity:

Coelom is greatly reduced. It is restricted to pericardial cavity (space around the heart), and to small spaces within kidneys and gonads (testes and ovaries). Spaces amongst the viscera (soft organs) contain blood and form haemocoel.

8. Digestive tract:

It is complete.

9. Blood vascular system:

It is open type. It includes dorsal heart, arteries that open into sinuses; (spaces) and veins. Blood is usually blue due to the presence of a copper- containing blue respiratory pigment called haemocyanin. Among the molluscs, cuttle fish are exceptional in having closed blood vascular system.

10. Respirator, organs:

These are gills (cteoidia). Mantle and pulmonary sae (in semi-terrestrial form).

11. Excretory organs:

Excretory organs are one or two pairs of sac- like kidneys. Gills are also excretory in function. Ammonia is chief excretory matter.

12. Nervous System:

The nervous system comprises paired cerebral, pleural, pedal and visceral ganglia joined by the nerve connectives and commissures. Connectives connect dissimilar ganglia; however, commissures connect similar ganglia

13. Sense Organs:

In many molluscs, eyes are present over stalks called ommatophores. Statocysts (balancing organs) may be present. Osphradium is present in some molluscs for testing chemical and physical nature of water.

14. Sexes:

The sexes are generally separate but some are hermaphrodite.

15. Development:

They are oviparous. The development is either direct or indirect (metamorphosis). When the development is indirect it includes a characteristic larva, liger, trochophore or glochidium. Asexual reproduction is absent.

Unique Features:

(i) Mantle covers the body,

(ii) Mantle may be surrounded by shell, and

(iii) Nervous system consists of cerebral, visceral, pleural and pedal ganglia.

Advancement over Annelids:

(i) Shell is present in many individuals,

(ii) In some forms, a lungs is present for pulmonary respiration, and

(iii) Better developed sense organs such as eyes, statocysts and osphradia.