Animal Kingdom

Question1

Match the entries in column I and column II.

Column I		Column II	
P.	Notochord and hollow nerve cord present	i.	Cyclostomata
Q.	Ectoparasite with 6-15 pairs of gills and closed circulation	ii.	Chondrichthyes
R.	Marine animals with persistent notochord and placoid scales	iii.	Hemichordata
S.	Animals with open circulatory systems, and stomochord	iv.	Chordata

Which one of the following combinations is correct?

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Options:

A.

P - iv; Q - i; R – ii; S – iii

B.

P - iv; Q - ii; R - i; S - iii

C.

P – i; Q – iii; R – ii; S – iv

D.

P – iii; Q – i; R – ii; S – iv

Answer: A

Solution:

Column I

P. Notochord and hollow nerve cord present

→ These are defining features of **Phylum Chordata**.

✅ So, **P → iv (Chordata)**

Q. Ectoparasite with 6–15 pairs of gills and closed circulation

→ Ectoparasitic, jawless vertebrates with multiple gill pairs and closed circulation are **Cyclostomes** (e.g. lamprey).

✅ So, **Q → i (Cyclostomata)**

R. Marine animals with persistent notochord and placoid scales

→ These features are typical of **cartilaginous fishes (Chondrichthyes)**—like sharks, skates, and rays—where notochord persists and placoid scales are present.

✅ So, **R → ii (Chondrichthyes)**

S. Animals with open circulatory systems, and stomochord

→ Stomochord and open circulation characterize **Hemichordata** (acorn worms).

✅ So, **S → iii (Hemichordata)**

Therefore, the correct matching is

$P - iv; \quad Q - i; \quad R - ii; \quad S - iii$

✅ **Option A** is correct.

Question2

Which one of the following statements is correct?

IAT (IISER) 2024

Options:

A. Hemichordata is not a chordate sub-phylum because it has a water vascular system.

B. Hemichordata is a chordate sub-phylum with a proto-notochord called stomochord.

C. Hemichordata is a chordate sub-phylum with a proper notochord and gill slits.

D. Hemichordata is not a chordate sub-phylum, with a proto-notochord called stomochord.

Answer: D

Solution:

Hemichordata was earlier considered as a sub-phylum under phylum Chordata. But now it is placed as a separate phylum under non-chordata. Hemichordates have a rudimentary structure in the collar region called stomochord, a structure similar to notochord.

Question3

Organisms in which of the following phyla are triploblastic, acoelomate and have bilateral symmetry?

IAT (IISER) 2022

Options:

A. Arthropoda

B. Mollusca

C. Platyhelminthes

D. Hemichordata

Answer: C

Solution:

Organisms in the phylum Platyhelminthes (flatworms) are triploblastic, meaning they have three germ layers (ectoderm, mesoderm, and endoderm), acoelomate, meaning they lack a true body cavity (coelom), and have bilateral symmetry, meaning their body can be divided into two equal halves along one plane.

Question4

Radial symmetry is NOT found in which of the following tax_a?

IAT (IISER) 2020

Options:

A. Echinodermata

B. Cnidaria

C. Ctenophora

D. Cyclostomata

Answer: D

Solution:

The correct answer is:

D: Cyclostomata

Here's why:

Echinodermata: Adult echinoderms (like starfish and sea urchins) exhibit radial symmetry, typically arranged in five parts.

Cnidaria: Animals in this group (such as jellyfish and sea anemones) also display radial symmetry.

Ctenophora: These organisms, commonly known as comb jellies, generally exhibit a form of radial symmetry (often biradial).

Cyclostomata: This group consists of jawless vertebrates, including species like hagfish and lampreys, which have bilateral symmetry rather than radial symmetry.

Therefore, since Cyclostomata are bilaterally symmetrical, radial symmetry is NOT found in this taxon.
