

IMPORTANT QUESTIONS CLASS – 11

BIOLOGY CHAPTER -4 'ANIMAL KINGDOM

Question 1.

Describe the phylum Cnidaria.

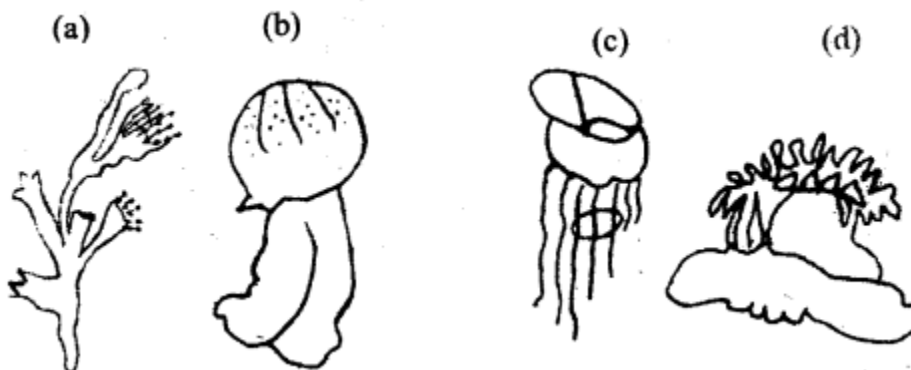
Answer:

Cnidaria is aquatic, mostly marine, sessile, or free-swimming animals. The phylum name is derived from the stinging cells (nematocysts) or cnidoblasts present on the ectoderm of tentacles and on the body of these carnivorous animals. Cnidoblasts are used for anchorage, defense, and for capture of prey. Cnidarians exhibit tissue level of organization and exhibit radial symmetry. They are diploblastic.

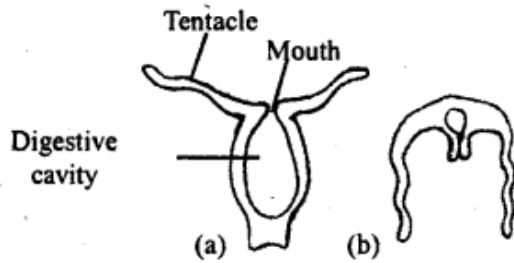
The digestive system is incomplete. They have a central gastro-vascular cavity with a single opening, mouth. Digestion is extracellular and intracellular. Some of the cnidarians, e.g., corals, have skeletons composed of calcium carbonate.

Cnidarians exhibit two basic body forms called a polyp (e.g., Hydra) and medusa (e.g., Aurelia). The former, a sessile and cylindrical form, whereas, the latter, umbrella-shaped and free-swimming. Those cnidarians which exist in both forms exhibit alternation of generation, i.e. polyps asexually produce medusae and medusae forming the polyps sexually (e.g., Ophelia)

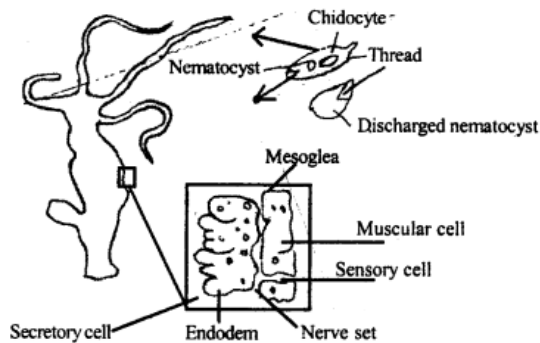
Examples of cnidaria: Hydra, Porpita, Vellala, Physalia (Portuguese man-of-war), Aurelia (Jellyfish), Adamisia (Sea anemone), Pennatula (Sea- pen), Gorgonia (Sea-fan), and Meandrina (Brain coral).



Some cnidarians (a) Obelia (b) Jellyfish (c) Physalia (d) Sea anemone



Polyp and medusa body form (a) sessile polyp (b) swimming medusa



Structure of Hydra

Question 2.
Distinguish between the Chordates and Non-Chordates.

Answer:

Chordates	Non-Chordates
1. Notochord present.	1. Notochord absent.
2. Central nervous system is dorsal, hollow, and single.	2. Central nervous system is ventral solid and double.
3. Pharynx perforated by gill slits	3. Gill slits are absent.
4. Heart is ventral.	4. Heart is dorsal.
5. A post-anal (tail) is present.	5. Past-anal tail is absent.

Question 3.

Explain the class amphibia.

Answer:

As their name indicates (Gr. Amphi, dual, double + bios, life), most amphibians can exist in aquatic as well as terrestrial habitats. Most of them have two pairs of limbs. The body is divisible into the head and trunk; the tail may be present in some. The amphibian skin is moist (without scales). The eyes have eyelids. A tympanum represents the ear.

The alimentary canal, urinary and reproductive tracts open into a common chamber called the cloaca, which opens to the exterior through an aperture called the cloacal aperture. Respiration may be by gills, lungs, or through the skin. The heart is three-chambered (2 auricles and 1 ventricle). These are cold-blooded animals.

Sexes are separate Fertilization is external. They are oviparous and development is direct or indirect.

Examples of Amphibia: Bufo (Toad), Rana (Frog), Hyla (Tree frog),

Salamandra (Salamander), Ichthyophis (Limbless amphibia).



Frog

Question 4.

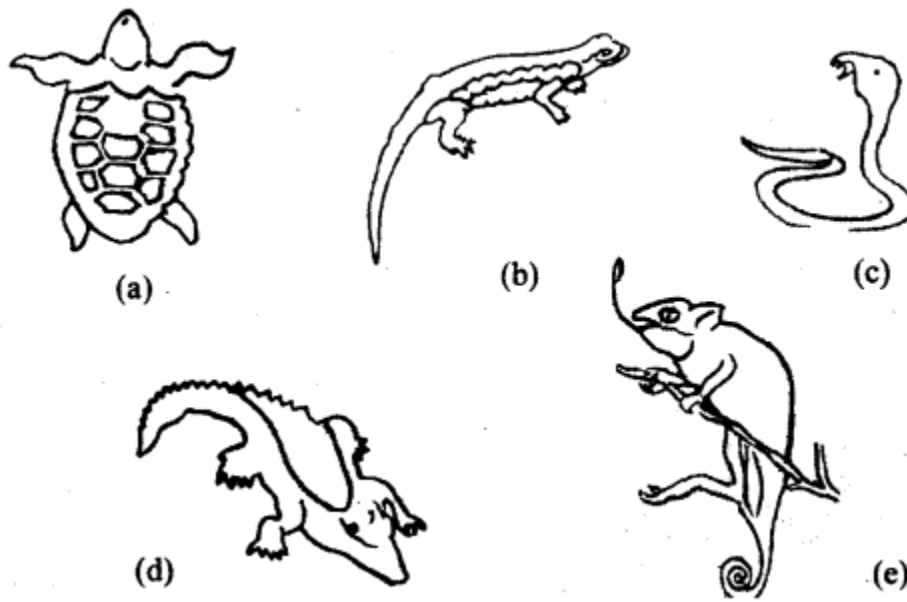
Describe the class Reptilia.

Answer:

The class name refers to their creeping or crawling mode of locomotion. They are mostly terrestrial animals with a body covered by dry and cornified skin, epidermal scales, or scutes. They do not have external ear openings. Limbs, when present, are two pairs. The heart is usually three-chambered, but four-chambered in crocodiles, Reptiles are cold-blooded animals. The excretory organ is the kidney. Snakes and lizards shed their scales as skin cast.

Sexes are separate. Fertilization is internal. They are oviparous and development is direct.

Examples of Reptilia T Chelone (Turtle), Testudo (Tortoise), Chameleon (Tree lizard), Calotes (Garden lizard), Naja (Cobra), Crocodilus (Croco-dile), Aligator (Alligator).



(a) Tortoise, (b) Monitor (Indian goh) (c) Naja (d) Crocodile (e) Chameleon

Question 5.

Explain the important characteristics of Mammalia.

Answer:

Mammalia is generally terrestrial, found in a variety of habitats- polar ice caps, deserts, mountains, forests, grasslands, and dark cover. Some of them have even adapted to fly or live in water. The most unique mammalian characteristic is the presence of milk-producing glands (mammary glands) by which the young ones are nourished.

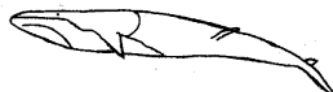
Mammalia has two pairs of limbs, which are variously adapted for walking, running, climbing, burrowing, swimming, and flying. The skin of mammals is unique in possessing hairs. External ears or pinnae are present. Different types of teeth are present in the jaw. The heart is four-chambered. The lungs are well developed. Mammals show the greatest intelligence among all the animals.

Sexes are separate and fertilization is internal. They are viviparous with few exceptions and development is direct.

Some mammals:



Ornithorhynchus



Balaenoptera



Pteropus



Macropus

Question 6.

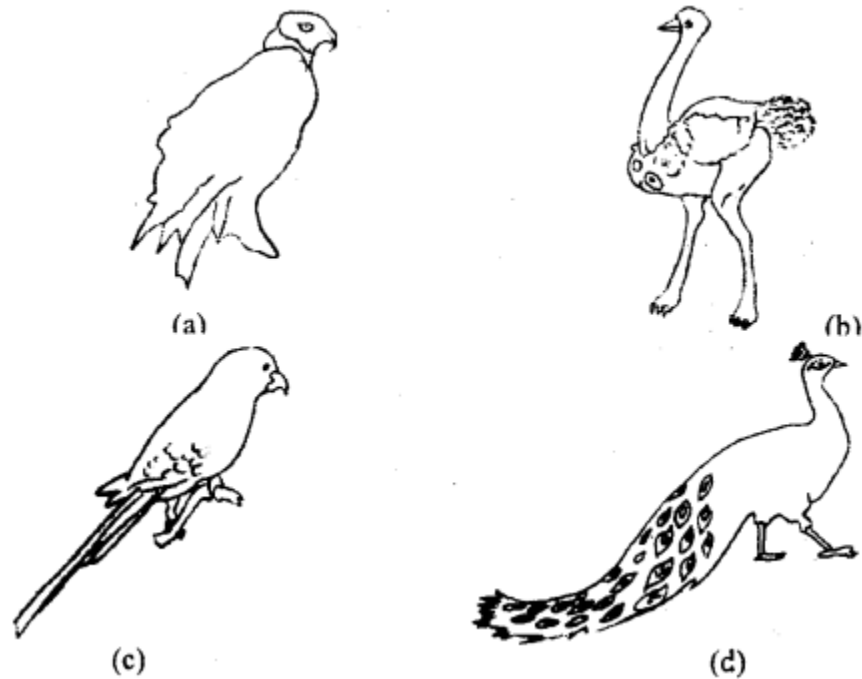
Describe the main characteristic of class-Aves.

Answer:

The characteristic features of birds are the presence of feathers and most of them can fly with few exceptions, generally called flightless birds (e.g. Ostrich). They possess beak. The forelimbs are modified into wings. The hind limbs generally have scales and are modified for walking, swimming, or clasping the tree branches. Skin is dry without glands except for the oil gland at the base of the tail. The endoskeleton is fully ossified (bony) and the long bones are hollow with air cavities.

The digestive tract of birds has additional chambers, the crop, and the gizzard. The heart is completely four-chambered. They are warm-blooded (homeotherms) animals, i.e., they are able to maintain constant body temperature. Respiration is by lungs that contain air sacs. Birds have a good sense of sight. The excretory organ is a kidney.

Sexes are separate. Fertilization is internal. They are oviparous and development is direct. Examples of Aves are Corvus (crow), Columba (pigeon), Prittacula (parrot), Struthio (Ostrich) Paver (Peacock), Aptenodytes (Penguin)



Some birds : (a) Neophron (b) Struthio (c) Psittacula (d) Pavo

Question 7.

Write some basic characterize- features of the following Phyla: Ctenophora, Annelida, Mo.llusca, Echino Dermata and Hemichordata.

Answer:

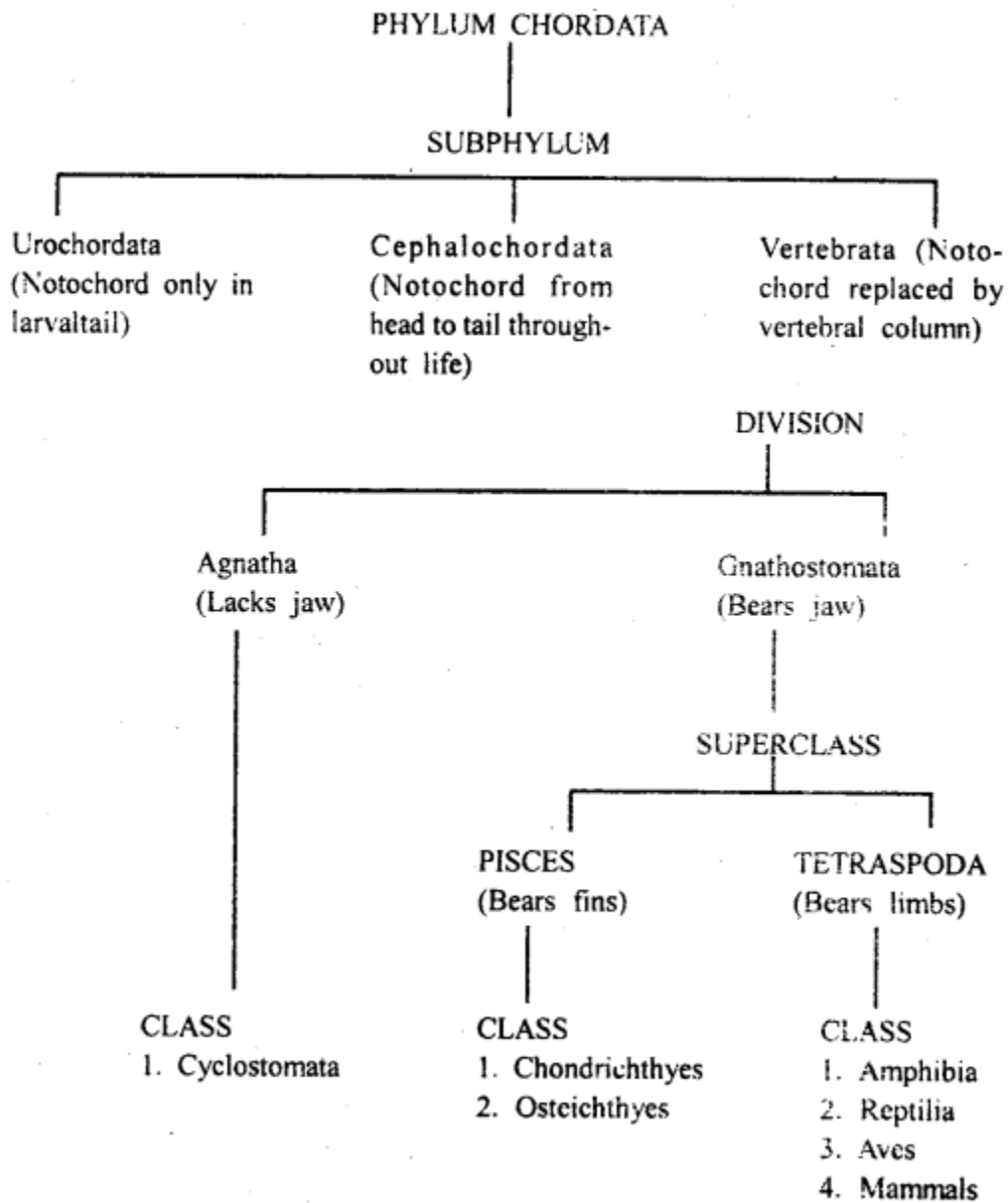
Represents some basic characteristic features of different phyla.

PHYLUM	LEVEL OF ORGANISATION	SYMMETRY	COELOM	SEGMENTATION	DIGESTIVE SYSTEM	CIRCULATORY SYSTEM	RESPIRATORY SYSTEM	DISTINCTIVE FEATURES
Ctenophora	Tissue	Radial	Absent	Absent	Incomplete	Absent	Absent	Comb plates for locomotion.
Annelida	Organ-system	Bilateral	Eucoelomate	Present	Complete	Present	Present	Body segmentation like rings.
Mollusca	Organ-system	Bilateral	Eucoelomate	Absent	Complete	Present	Present	External skeleton of a shell usually present.
Echino Dermata	Organ-system	Radial	Eucoelomate	Absent	Complete	Present	Present	Water vascular system; radial symmetry.
Hemi Chordata	Organ-system	Bilateral	Eucoelomate	Absent	Complete	Present	Present	Worm-like with proboscis, collar and trunk.

Question 8.

Draw the diagram of the classification of phylum Chordata.

Answer:



Classification of phylum Chordata

Question 9.

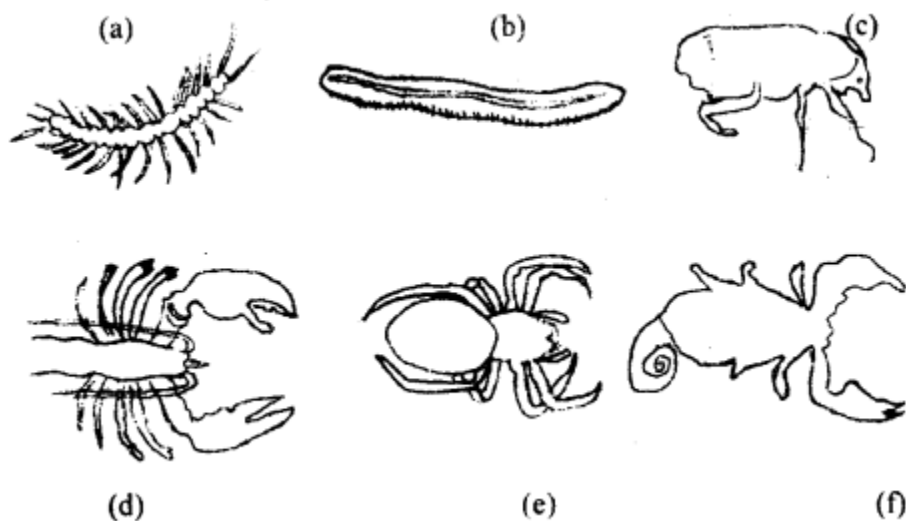
Describe the phylum Arthropods.

Answer:

The phylum Arthropoda is the largest phylum of the animal kingdom consisting of more than 900,000 species, which include many economically important insects.

1. They have an organ-system level of body organization. They are bilaterally symmetrical, triploblastic, segmented, and acoelomate animals.
2. The body of arthropods is covered by a chitinous cuticle which forms the exoskeleton. The body segments are fused to form the head, thorax, and abdomen.
3. They have jointed appendages. The appendages are variously modified to form antennae, mouthparts, pincers (chelicerae), or walking legs.
4. The digestive system is complete.
5. Respiratory organs are gills, book gills, book lungs, or tracheal system.
6. The circulatory system is open type.
7. The nervous system is almost similar to that of the annelids. Sensory organs include antennae for perceiving odor, receptors for taste, eyes (compound and simple), statocysts or balance, organs, and sound receptors.
8. Excretion takes place through green glands or malpighian tubules.
9. They are mostly dioecious. Reproduction is sexual. Fertilization is usually internal. They are mostly oviparous.

Development may be direct or indirect, passing through many larval stages. The process of transformation of a larva into an adult is called metamorphosis.



Some common arthropods (a) Centipede (b) Millipede (c) Beetle (d) Prawn (e) Spider and (f) Scorpion

Examples of Arthropoda: Araneus (Garden spiders), Limulus (King crab),

Buthus (Scorpion), Scolopendra (Centipede), Cancer (Common crab), Balanus (Barnacle), Lepisma (Silverfish), Periplaneta (Cockroach), Apis (Bee) Anopheles (Mosquito), Musca (Housefly), Charaxes (Butterfly), Attelabus (Beetle), Locusta (Locust) and An ax (Dragonfly).

Question 10.

Describe the phylum Porifera.

Answer:

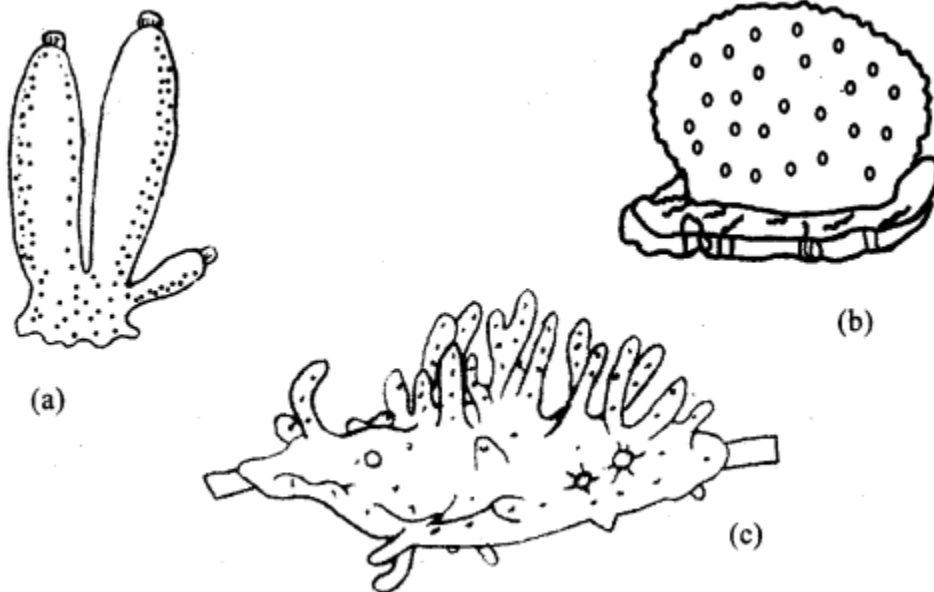
Members of this phylum are commonly known as sponges. They are generally marine, diploblastic bilaterally symmetrical with a significant water transport mechanism. They are considered as very primitive multi-cellular animals and have a cellular level of organization.

Water can enter through minute pores (Ostia) in the body wall directly or through the canal into a central cavity, spongocoel, from where it goes out through the osculum.

This pathway of water transport is called the canal system and is helpful in food gathering, respiratory exchange, and removal of water. Choanocytes or collar cells line the spongocoel and the canals. Digestion is intracellular. The body is supported by a skeleton made up of spicules or spongin fibers.

Sexes are not separate (monoecious/hermaphrodite/bisexual), i.e., eggs and sperms are produced by the same individual. Sponges reproduce asexually by fragmentation and sexually by the formation of gametes. Fertilization is internal and development is indirect having a larval stage that is morphologically distinct from the adult.

Examples of Porifera are Sycon (Scypha), Spongilla, Chalina, (Dead man's finger), and Euspongia (Bath sponge)



Examples for Porifera: (a) Sycon (b) Euspongia (c) Spongilla