

Class: XI
Subject: Biology
Topic: Animal kingdom
No. of Questions: 20

Q1. What is protandry ?

Sol. Maturation of male sex organs earlier than female sex organs.

Q2. What is the source of coelomic fluid?

Sol. Mesodermal epithelial lining of the coelom.

Q3. Fill in the blanks :

- (i) Variability of animal Has greatly helped in their classification.
- (ii) Heterotrophic mode of nutrition is an important factor in causing great diversity in the.....of animal structure.
- (iii) Fertilization results in the formation ofzygote.
- (iv) The digestive cavity of hydra has only opening for both ingestion and egestion.
- (v) Radial symmetry means that the body of the animal may be divided into.....equal halves.

Sol. (i) morphology (ii) gut or digestive system (iii) diploid (iv) single (mouth) (v) two.

Q4. What is the importance of pneumatic bones and air sacs in Aves ?

Sol. Pneumatic bones in Aves keep the animal body light and hence help in flight. Air sacs in Aves help in respiration and buoyancy.

Q5. What is metagenesis ?Mention one example which exhibits this phenomenon.

Sol. Metagenesis literally means alteration of generation. Example :Obelia.

Q6. Give a one-word scientific term for the following :

- (a) Construction of an animal such as earthworm by repeated segments
- (b) Blood-filled cavity in arthropods
- (c) Excretory organs of an annelid
- (d) Free-floating form of cnidarian

- (e) Stinging cells of jellyfishes
- (f) Individual animals bearing organs of both sexes
- (g) A collection of nerve cell bodies
- (h) Molluscs with two valved shells

Sol. (a) segmented worms (b) haemocoel (c) nephridia (d) medusa (e) cnidoblasts (f) hermaphrodite (g) ganglia (h) pelecypoda.

Q7. Give one example for each of the following :

- (a) A group of marine animals which release a colouring matter to escape predators.
- (b) An animal which shoots out its tongue to capture insects
- (c) An amphibian which carries its young on its back
- (d) An animal which communicates by means of pheromones
- (e) A mammal that lays eggs

Sol. (a) sepia (b) frog (c) pipa (d) deer (e) duck-billed platypus.

Q8. What is elephantiasis? How is it caused?

Sol. Heavy infection blocks the lymph vessels. This causes enormous swelling of the affected region. This disease is called elephantiasis. It is caused by the bite of female *Culex* mosquito.

Q9. Give classification of electric ray. What are its electric organs made of?

Sol.

Kingdom:	Animalia
Phylum:	Chordata
Class:	Chondrichthyes
Subclass:	Elasmobranchii
Order:	Torpediniformes
Family:	Torpedinidae
Genus:	Torpedo

Its electric organs are modified muscles.

Q10. How do frog and toad differ?

Sol.

Frog	Toad
<ol style="list-style-type: none"> 1. Frog is active by day (diurnal). 2. Frog lays eggs in a mass. 3. Skin is moist, smooth, slimy and respiratory. It contains numerous mucous glands. 4. Body is olive brown with irregular dark patches. 5. Webs are well developed. 	<ol style="list-style-type: none"> 1. Toad is active at night (nocturnal). 2. Toad lays eggs in a line. 3. Skin is dry, rough, warty and non-respiratory. It contains numerous poison glands and fewer mucous glands. 4. Body is ash-grey. 5. Webs are rudimentary.

Q11. Differentiate between :

- (a) Open circulatory system and closed circulatory system
- (b) Oviparous and viviparous characteristic.
- (c) Direct development and indirect development.

Sol. (a)

Open circulatory system	Closed circulatory system
Heart pumps blood into sinuses and the cells and tissues are directly bathed in blood.	Heart pumps blood withing a network of vessels with a great pressure.

(b)

Oviparous	Viviparous
Animals which lay eggs are called oviparous animals. Examples: fishes, amphibians, reptiles, birds.	Animals which give birth to their young ones are called viviparous animals. Examples. All mammals except prototherians.

(c)

Direct development	Indirect development
It involves development of adult from the young one (which resembles the adult) without involving larval stage.	It involves development of larval stage (which does not resemble the adult). The larva then develops into the adult.

Q12. Write short notes on: cephalization, Metamerism, Appendages, Germ Layers, planes.

Sol. Cephalization – Cephalization means differentiation of a definite head at the anterior end.

Metamerism – The term segmentation refers to a linear repetition of parts in an animal body. Each segment is called a metamere or somite. Segmentation often affects both external and internal structures. Such a condition is called metameric segmentation.

Appendages – The structures projecting from the body of an animal for use in locomotion, feeding and some other purposes are called the appendages.

Germ layers – The early embryos acquires fundamental cell layers through the process of gastrulation in the Eumetazoa. These are called germ layers.

Planes – Animal body can be cut along three planes for examining its internal structure: vertical, transverse and horizontal.

Q13. Distinguish between the following : sagittal section and frontal section

Sol. A vertical section passing through the middle line of the body is called the sagittal section.

Frontal plane passes along the length perpendicular to the dorso-ventral axis of the body.

Q14. Discuss the variation in the animals regarding the excretory product?

Sol. Animals may be classified into 4 categories on the basis of the nature of their main excretory matter:

Ammoniotelic animals – These animals excrete ammonia. They include most aquatic invertebrates (Hydra) and some aquatic vertebrates (bony fishes, tailed amphibians).

Ureotelic animals – These animals excrete urea. They include cartilaginous fishes (sharks, rays), tail-less amphibians (frog, toad) and mammals.

Uricotelic animals – These animals excrete uric acid. They include insects and snails, land reptiles and birds.

Aminotelic animals – These animals excrete amino acids. They include some mollusks and some echinoderms.

Q15. Name two economically important sponges, give their classification. Write a short note on any one of these.

Sol. Spongia and

Q16. Describe any social insect. Refer it to its class and phylum.

Sol. *Apis indica* (The Honeybee) is found in India and adjacent countries. It is originally an inhabitant of hills, but now occurs in plains also.

The honeybee is a social, polymorphic and colonial insect. The colony comprises three castes: a fertile female called the queen; a few males termed the drones and numerous sterile females known as workers. *Apis indica* belongs to the class Apidae and phylum Arthropoda.

Q17. Write a note on a poisonous arthropod. Also give its classification.

Sol. Scorpions are terrestrial, nocturnal and carnivorous. The prey (insects, spiders, worms) is killed with the sting, and relieved by its body fluid. Cannibalism is also practiced. The sexes are separate. Scorpion is a poisonous animal. Its sting is very painful. Its venom is neurotoxic.

Classification of Scorpion:

Kingdom:	<u>Animalia</u>
Phylum:	<u>Arthropoda</u>
Class:	<u>Arachnida</u>
Order:	<u>Scorpiones</u>
Family:	<u>Scorpionidae</u>
Subfamily:	<u>Scorpioninae</u>
Genus:	<i>Heterometrus</i>

Q18. Give the scientific name and class of the following vertebrates –

Lamprey, electric ray, African lungfish, toad, cobra, wall lizard, pigeon, rabbit, dolphin and spotted deer.

Sol. 1. Lamprey - *Petromyzon*

Class – Hyperoartia

2. Electric ray – *Torpedo*

Class – Chondrichthyes

3. African lung fish – *Protopterus*

Class – Sarcopterygii

4. Toad – *Bufo*

Class – Amphibia

5. Cobra – *Naja naja*

Class – Reptilia

Wall lizard – *Podarcis muralis*

Class – Reptilia

a. Pigeon - *Columba livia domestica*

Class – Aves

b. Rabbit- *Oryctolagus cuniculus*

Class – Mammalia

c. Dolphin – *Delphinus*

Class- Mammalia

d. Spotted deer – *Axis axis*

Class – Mammalia

Q19. Name the following vertebrates and refer them to their respective classes?

Sol. (i) A fossil bird – Archeopteryx belongs to the class Aves

(ii) bird that lays eggs in another bird's nest – The Cuckoo belongs to the class Aves

(iii) an Antarctic bird – Penguin (Aves)

(iv) an indian ape - *Macaca mulatta* (Mammalia)

(v) tallest mammal – Giraffes (Mammalia)

(vi) an extinct reptile – Dinosaurs belong to the class Reptilia

(vii) a limbless amphibian – Ichthyophis belongs to the class Amphibia.

(viii) a lungfish – African Lungfish (Sarcopterygii)

Q20. Distinguish between : bony fishes and cartilaginous fishes

Sol.

Bony fishes	Cartilaginous fishes
Mouth is ventral	Mouth is dorsal
Gill slits-uncovered	Gill slits covered by opercula
Dorsal fin-2	Dorsal fin-usually one
Caudal fin-heterocercal	Caudal fin-homocercal
Scales-placoid	Scales-cycloid, ctenoid or ganoid