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### **Classification of Animal Kingdom**

**Zoology :** Scientific study of the structure, form and distribution of animals.

Animals kingdom of the world is divided into two sub-kingdoms :

(i) Unicellular animal

(ii) Multi-cellular animal.

Unicellular animals are kept in a single phylum Protozoa whereas multi-cellular animals are divided into 9 phylums.

Classification of animals according to Storer and Usinger -

#### A. Phylum Protozoa : Main features – Unicellular

(i) It's body is made of only one cell.

(ii) There is one or more nuclei in its cytoplasm.

(iii) Are both the types commensalism and parasite.

(iv) All the metabolic activity (eating, digestion, respiration, excretion, reproduction) takes place in unicellular body.

(v) Respiration and excretion take place by diffusion.

Example – Amoeba, Euglena, Trypanosoma etc.

**B.** Phylum Porifera : All animal of this group are found in marine water & bear pores in body.

(i) These are multicellular animals but cells do not make regular tissues.

(ii) Numerous pores known as ostia found on body wall.

(iii) Skeleton is made up of minute calcareous or silicon spicules. Example – Sycon, Sponge etc.

#### C.Phylum Coelenterate : Main features – Coelenteron is present

(i) Animals are aquatic and diploblastic.

(ii) Around the mouth some thread-like structure are found known as tentacles, which help in holding the food.

- (iii) Body radial symmetry.
- (iv) Specialized cnidoblast cell are found help in catching the food.

**Example –** Hydra, Jelly fish, Sea Anemone etc.

#### D.Phylum Platyhelminthes : Main features – Flat worm

- (i) Triploblastic and no body cavity.
- (ii) Dorso-ventraly flattened animal.
- (iii) Alimentary canal with single opening, anus absent.
- (iv) Excretion takes place by flame cells.
- (v) There is no skeleton, respiratory organ, circulatory system etc.
- (vi) These are hermaphrodite animal.
- Example Planaria, Liver fluke, Tape worm etc.

#### E.Phylum Ascheleminthes : Main features – Round worm

- (i) Long, cylindrical, unsegmented worm.
- (ii) Bilaterally symmetrical and triploblastic.
- (iii) Alimentary canal is complete in which mouth and anus both are present.
- (iv) There is no circulatory & respiratory systems but nervous system is developed.

(v) Excretion takes place through Protonephridia.

- (vi) They are unisexual.
- (vii) Most form are parasitic but some are free living in soil & water.

**Example –** Round worm, like – A scaris, Thread worm, Wuchereia etc.

**Note :** (i) Enterobius (pin worm / thread worm) – It is found mainly in the anus of child. Children feel itching and often vomits. Some children urinate on the bed at night. (ii) Filarial disease is caused by Wuchereia bancrofti.

#### F. Phylum Annelida : Main features – Annulus body Bearing ring

(i) Body is long, thin, soft and metamerically segmented.

(ii) Locomotion takes place through Setae made up of Chitin.

(iii) Alimentary canal is well developed.

(iv) Normally respiration through skin, in some animals it takes place through coelom.

(v) Nervous system is normal and blood is red.

(vi) Excretion by nephridia.

(vii) Both unisexual and bisexual.

Example : Earthworm, Nereis, Leech etc.

Note : There are four pairs of heart in earthworm.

#### G.Phylum Arthropoda : Main features - Jointed leg

- (i) Body is divided into three parts Head, Thorax and Abdomen.
- (ii) Body is covered with a thick chitinous exoskeleton.
- (iii) Jointed leg.
- (iv) Circulatory system is open type.
- (v) Its body cavitys are called haemocoel.
- (vi) Trachea, book lungs, body surface are respiratory parts.
- (vii) These are mainly unisexual and fertilization takes place inside the body.

**Example –** Cockroach, prawn, crab, bug, fly, mosquito, bees etc.

**Note :** (i) There are six feet and four wings in insects, (ii) There are 13 chamber in the Cockroach's heart, (iii) Ant is a social animal which reflects labour division, (iv) Termite is also a social animal which lives in colony.

#### H. Phylum Mollusca : Main features – Soft bodies animal

- (i) Body is soft divided into head and muscular foot.
- (ii) Mantle is always present in it, which secretes a hard calcareous shell
- (iii) Alimentary canal is well developed.
- (iv) Respiration takes place through gills or ctenidia.
- (v) Blood is colourless.
- (vi) Excretion takes place through kidneys.

**Example – Pila**, Octopus, Loligo, Squid etc.

#### I. Phylum Echinodermata : Main features - Spiny skin

- (i) All the animals in this group are marine
- (ii) Water vascular system is present.
- (iii) There is Tube feet for locomotion, taking food which works as sensation organ.
- (iv) Brain is not developed in nervous system.
- (v) There is a special capacity of regeneration.

**Example :** Star fish, Sea urchin, Sea cucumber, Brittle stars etc.

**Note :** The work of the Aristotle lantern is to chew the food. It is found in sea urchin.

#### J. Phylum Chordata : Main features

- (i) Notochord is present in it.
- (ii) All the chordates are triploblastic, coelomate and bilaterally symmetrical.

(iii) A dorsal hollow tubular nerve cord and paired pharyngeal gill slits are other features of chordates.

According to classification there are two sub phyla in Chordata. (a) Protochordates and (b) Vertebrata

#### Some main groups of phylum Chordata :

1. Pisces : Main features – Aquatic life

- (i) All these are cold blooded animals.
- (ii) Its heart pumps only impure blood and have two chamber.
- (iii) Respiration takes place through gills.

Example : Hippopotamus, Scoliodon, Torpedo, etc.

#### 2. Amphibia : Main features - Found both on land & water

(i) All these creatures are amphibian.

(ii) All these are cold-blooded.

(iii) Respiration takes place through gill, skin and lungs. Heart have three, chamber two auricles and one ventricle.

Example : Frog, Necturus, Toad, etc. Icthyophis, Salamander.

Note : In fact the croaking of frogs is the call for sex.

#### 3. Reptilia : Main features – Crawlling animal

(i) Land vertebrate, cold-booded, terrestrial or aquatic vertebrates.

- (ii) It contains two pair of limbs.
- (iii) The skeleton is completely flexible.
- (iv) Respiration takes place through lungs.
- (v) Its eggs are covered with shell made up of Calcium carbonate.

**Example :** Lizard, snake, tortoise, crocodile, turtle, sphenodon etc.

#### Note : Mesozoic era is called the era of reptiles.

- **1.** Cobra is the only snake which makes nests.
- 2. Heloderma is the only poisonous lizard.
- 3. Sea snake which is called Hydrophis is the world's most poisonous snake.

**4.** Aves : Main features – Warm blooded tetrapod vertebrates with flight adaptation.

(i) Its fore-feet modified into wings to fly.

(ii) Boat shaped body is divisible into head, neck, trunk and tail.

(iii) Its respiratory organ is lungs.

(iv) Birds have no teeth, beak help in feeding.

Example : crow, peacock, parrot etc.

**Note :** (i) Flightless Birds–Kiwi and Emus. (ii) Largest alive bird is Ostrich. (iii) Smallest bird is Humming bird. (iv) Largest zoo in India is Alipur (Kolkata) and the largest zoo of the world is Cruiser National Park in South Africa.

#### 5. Mammalia : Main features

- (i) Sweat glands and oil glands are found on skin.
- (ii) All these animals are warm blooded.
- (iii) Its hearts are divided into four chamber.
- (iv) Tooth comes twice in these animals. (Diphyodont)
- (v) There is no nucleus in its red blood cells (except in camel and lama).
- (vi) Skin of mammal have hair.
- (vii) External ear is present.

#### Mammals are divided into three sub-classes :

(i) Prototheria – It lays eggs. Example – Echidna.

(ii) Metatheria – It bears the immature child. Example – Kangaroo.

(iii) Eutheria – It bears the well developed child. Example – Human.

**Note :** (i) In mammal the highest body temperature is of goat. (Average 39 degree Celsius). (ii) Echidna and Duck billed Platypus are the egg laying mammal.

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