**General Classification**

Traditionally all living organisms were classified under two main kingdoms, they are, (i) the plant kingdom and (ii) the animal kingdom. Certain unicellular organisms like bacteria, fungi, etc., were earlier classified under the plant kingdom. However, taxonomists in the last few decades have been opposing this classification of unicellular organisms into the plant kingdom and there have been constant endeavours to revise the system of classification. Accordingly, in 1969, R.H. Whittaker, classified all living organisms into five main kingdoms and this system is now receiving wide acceptance. According to this system the five kingdom are:

The kingdom Porkaryotae or Monera is sometimes given to include the viruses. Order systems describe viruses as being outside the normal system of classification.

(i) Monera (true-bacteria, blue-green algae)

(ii) Protista (Golden algae, yellow-green algae)

(iii) Fungi (slime molds, bread molds, sac fungi)

(iv) Plantae

(v) Animalae

A brief description of the classification along with sub-classifications is given below:

***Monera*** are organisms with prokaryotic cells and diverse nutritional habits, including photosynthesis, chemosynthesis and absorption. Reproduction is as sexual, by simple cell division, for example, true-bacteria, fungus like bacteria, blue-green algae.

***Protista*** are unicellular or colonial eukraryotes with diverse nutritional habits, reproduce both sexual and asexual involving meosis and nuclear fusion. Mobility is by means of more advanced type of flagella, e.g., Euglenophytes, Dinoglagellates, golden algae, yellow-green algae.

***Fungi*** are multinucleate organisms, with non-photosynthetic nutrition through absorption, lacking tissue differentiation, e.g., slime molds, water molds, bread molds, sac fungi, etc.

***Plantae*** Multicellular organisms with cells being enclosed by a rigid cell wall. Nutrition mostly by photosynthesis with exception of a few species being absorptive. Plantae include all botanical organisms.

***Animalae*** Include all protozoa and metazoa zoological organisms. These are multicellular eukaryotic organisms with cells lacking a rigid cell-wall and photosynthetic apparatus.

ANIMAL KINGDOM

There are 1.5 million species in animal Kingdom. However, it is divided into two large groups on the basis of external resemblance, homologous features and similarities between their developments

These groups are:

(1) Invertebrates (2) vertebrates

**Invertebrates**

Those animals which do not have backbone are called invertebrates. Invertebrates are divided into different phyla, as follows:

***(i) Phylum Protozoa***

(a) Unicellular

(b) Cannot be seen with naked eye but visible below microscope.

(c) In Protozoans a single cell can perform all functions of life like digestion, respiration, reproduction etc.

(d) Some are helpful for human because they feed and destroy bacteria which are harmful to human health.

***Examples***

⏹ Plasmodium ⏹ Amoeba ⏹ Paramecium

***(ii) Phylum Porifera***

(a) Multicellular

(b) These animals have numerous small pores on their bodies called sponges.

(c) They are found in seawater but some are in fresh water.

(d) Sponges have different colours e.g., in glass sponges the skeleton is siliceous due to which they look shiny.

***Examples***

⏹ Cycon

***(iii) Phylum Coelenterate***

(a) They have special body cavity Coelenteron.

(b) They are diploblastic animals, having two body layers. The outer layer is ectoderm and the inner layer is endoderm. Between these two layers as jelly like substance Mesoglea is present.

(c) They are marine but some live in fresh water.

(d) They can move freely but few remains attached with stones and rocks.

***Examples***

⏹ Hydra ⏹ Jellyfish ⏹ Sea anemone

***(iv) Phylum Platyhelminthes***

(a) They are triploblastic animals, having three body layers. The outer layer is ectoderm, inner is endoderm and middle layer is called Mesoderm

(b) Their body is thin flattened and tape like.

(c) Some of them are free living and mostly are parasites.

(d) Parasites among Platyhelminthes live in liver, stomach and intestine of other animals. They attach themselves to walls of intestine of their host by suckers and suck blood and food.

***Examples***

⏹ Liver fluke ⏹ Tapeworm ⏹ Planaria

***(v) Phylum Nematoda***

(a) Their bodies are Cylindrical and pointed at both ends.

(b) They are called roundworms.

(c) Their digestive system is tubular

(d) Some are free living and some are parasites.

(e) They cause different diseases in human beings.

***Examples***

⏹ Ascaris ⏹ Hookworm ⏹ Flaria ⏹ Trichinella

***(vi) Phylum Annelida***

(a) They are found in moist soils, ponds, and River and sea bodies.

(b) There is external and internal segmentation in their bodies.

(c) They are free living.

(d) Some of them are hermaphrodites.

***Examples***

⏹ Earth worm ⏹ Neries ⏹ Leech

***(vii) Phylum Mollusca* (CSS 2014)**

(a) There are 50 thousand species in phylum Mollusca

(b) They have an external shell on their body for support and protection.

(c) They are found in moist aquatic habitat.

(d) Some are used as human food.

(e) Their bodies are complicated.

(f) They have muscular foot for their locomotion.

(g) They have gills for respiration.

(h) Buttons are made from their shells.

(i) Pearls are also produced by these animals.

***Examples***

⏹ Snails ⏹ Fresh Water Mussel ⏹ Cuttle Fish

⏹ Octopus ⏹ Oyster

***(viii) Phylum Arthropoda***

(a) Their bodies are externally segmented.

(b) Their bodies are covered with hard shell made up of chitin, forming exoskeleton.

(c) They are found in all habitats i.e. in air, water and on land.

***Examples***

⏹ Prawn ⏹ Spider ⏹ Crab ⏹ Scorpion

⏹ Centipede ⏹ Millipedes ⏹ Insects

***(ix) Phylum Echinodermata***

(a) They are marine animals

(b) Their body is covered with spines or spicules.

(c) They have water vascular system and gills.

(d) They are closets to chordates form evolutionary view point.

(e) They have arms active at night.

***Examples***

⏹ Star fish ⏹ Brittle star ⏹ Sea urchun ⏹ Sea cucumber.

**Vertebrates**

Animals who possess backbone or vertebral column. Five major classes of vertebrates

***(i) Fishes***

Fishes are aquatic animals, they have head trunk and tail, the organs of breathing are gills, they are cold blooded animals, and most fishes lay egg in the water.

***(ii) Amphibian***

The animals have tendency of living in water as well as on land, they are cold blooded animals’ i-e Frogs, Toads and Salamanders

***(iii)*** ***Reptilian***

Basically reptiles are creepers and first true land vertebrates, many reptiles live in water, their skin is dry, hard, and rough. They breathe by lungs i.e. Dinosaurs, lizards, Crocodiles, and snakes, tortoises are best examples

***(iv)*** ***Birds (Aves)***

They belongs to class Aves. Main characteristics of birds are:

⏹ The birds have feathers on their body

⏹ They stand on two lags,

⏹ Their limbs are modified into wings

⏹ The Aves are divided into two large groups

1. Running birds

2. Flying birds

The birds which cannot fly but run very faster known as running birds, they have weak wings. The birds which have tendency of flying are known as flying birds. Their wings have feathers to fly and their pictorial muscles are very strong, the feet of such types of birds are webbed.

***(v)*** ***Mammals***

These are warm blooded animals, having hair on their body and the female mammals nourish their young on their milk.

***Types of Mammals***

***1. Egg Laying Mammals***

These mammals lay eggs and feed their babies with milk, considered to be connecting link between reptiles and mammals, Duck Bill, and spiny aunt-eater are the best examples.

***2. Pouched Mammals***

These mammals gives birth to under developed babies, their mother keeps them in a pouch on its belly until they develop properly, and the mother feeds them in her milk. Example include Kangaroo, Opossum, and Koala.

***3. Typical Mammals***

These are true mammals, whose baby completes its development in the body of the mother, after the birth mother feed them her milk. They are further divided into sub groups:

⏹ Insect eating mammals (Mole)

⏹ Edentate mammals (Pangolin)

⏹ Rodent mammals (Rat)

⏹ Flying mammals (Bat)

⏹ Carnivorous mammals (Sea lion)

⏹ Hoofed mammals (Rhinoceros)

⏹ Trunked mammals (Elephant)

⏹ Fish like mammals (whale fish)

***Name of Mammals and Locations* (CSS 1997, 2005, 2007)**

⏹ Blue whale Found in all oceans

⏹ Panda China

⏹ Dolphin in seas

⏹ Kangaroo Australia

⏹ Snow leopard Central Asia

⏹ Yak Central Asia

⏹ Llama South Africa

⏹ Ibex wild mountain goat

***Name of Reptiles and Locations***

⏹ Cobra South Asia

⏹ Alligator North America

⏹ Tortoises water

⏹ Rattle snake America

***Name of Birds and Locations***

⏹ Ostrich desert of Africa

⏹ Penguin Antarctic regions

⏹ Kiwi New Zealand

⏹ Rhea South Africa

⏹ Emu Australia

***Name of Fishes and Locations***

⏹ Shark found in all oceans

⏹ Trout fresh water fish

