

## 2. KINGDOM CLASSIFICATION

### **A. Choose the correct answer:**

- The lowest unit of classification is  
a. kingdom    b. genus    c. species    d. class
- Which of the following are unicellular prokaryotic organisms?  
a. Bacteria    b. Fungi    c. Algae    d. All of these
- Rhizoids are found in  
a. thallophyta    b. bryophyta    c. pteridophyta    d. gymnosperms
- Pteridophytes are  
a. seed producing green plants  
b. seedless spore producing plants  
c. non-green organisms growing in damp places  
d. chlorophyll containing green aquatic organisms
- In gymnosperms seeds develop inside  
a. flowers    b. fruits    c. cones    d. sori
- Which of the following statements is incorrect?  
a. The seeds are enclosed within the fruit in an angiosperm.  
b. Mango is a monocotyledonous plant.  
c. In a shrub many stems arise from the base of the stem, just above the ground.  
d. Plants that live and grow in the desert are called xerophytes.
- The microbe that helps in nitrogen fixation is  
a. Rhizobium    b. Penicillium    c. Yeast    d. Chlorella
- Euspongia belong to the group  
a. Protozoa    b. Porifera    c. Annelida    d. Arthropoda
- In a Coelenterata, the mouth is surrounded by a number of projections called  
a. tentacles    b. nephridia    c. shell    d. sucker
- The body is segmented and divided into head, thorax and abdomen in  
a. cockroach    b. pearl oyster    c. starfish    d. tapeworm
- Which class of animals constitutes all marine animals?  
a. Amphibia    b. Echinodermata    c. Protozoa    d. Annelida
- Sharks and skates are marine fishes which have  
a. exposed gill slits    b. gill covers    c. horny scales    d. five fingered limbs
- Which of the following is the correct match?  
a. Crocodile – Fresh water reptile    b. Emu – External ears  
c. Horse – Omnivore    d. Bats – Arboreal
- Which of the following statements is correct?  
a. The body temperature of warm blooded animals vary with temperature.  
b. Viviparous animals lay eggs.  
c. Roundworm and tapeworm are parasites that live in the body of other animals.  
d. The scientific name of cat is Canis Familiaris.
- Vertebrates are animals that have  
a. backbone    b. heart on the ventral side of the body  
c. both of (a) and (b)    d. neither (a) nor (b)

### **B. Give one word for the following:**

- Unicellular prokaryotic organism.  
A. Monera
- Amphibians of the plant kingdom.

A. Bryophytes

3. Process by which green plants make food.

A. Photosynthesis

4. Reptiles without limbs.

A. Snakes

5. Part of the flower that becomes fruit.

A. Ovary

6. Largest group of invertebrates.

A. Arthropoda

7. Organ of locomotion of snail.

A. Muscular foot

8. Giant reptiles of the animal kingdom.

A. Dinosaurs

9. Animals with backbone.

A. Vertebrate

10. The lowest category in classification.

A. Species

**C. State two examples in each case:**

1. Non-flowering plants: ferns, mosses

2. Flightless birds: emu, ostrich

3. Bony fishes: Rohu, Catla

4. Cold-blooded animals: Amphibians, Reptiles, Fishes

5. Oviparous animals: Amphibians, Birds

**D. Fill in the blanks with suitable words:**

1. The different shapes of bacteria are spherical, rod shaped, spiral and comma shaped.

2. Yeast is used for making bread or cakes and in manufacture of alcohols.

3. Root like structures of bryophytes are called rhizoids.

4. Anthrax and Tuberculosis are bacterial diseases in animals.

5. Heart of vertebrates are present on the ventral side of the body.

6. Ostrich and Emu are birds that cannot fly.

7. Body of arthropods is covered by a chitinous exoskeleton.

8. In coelenterates, tentacles have stinging cells.

9. Leaves of ferns are called fronds.

10. Plants may be flowering or non-flowering.

**E. Answer the following questions briefly:**

1. Give the scientific names of dog, human being, tiger, frog.

A. Dog – *Canis familiaris*, Human being – *Homo sapiens*, Tiger – *Panthera tigris*, Frog – *Rana tigrina*.

2. Define arboreal and aerial animals.

A. Arboreal animals are animals who spend their life on trees. E.g., monkey, chimpanzee, etc.

Aerial animals are animals who fly in the air. E.g., birds, bats, insects, etc.

3. What are bony fishes? Give two examples.

A. Bony fishes are fishes in which the skeleton are composed of bony tissues. Example: rohu and catla.

Bony fishes may be marine or fresh water in habitat.

4. State two characteristics each of Mollusca and Arthropoda.

A. Mollusca : They have soft, unsegmented body which is divided into head, muscular foot and hump.

The hump is covered by a calcareous shell. The shell protects the body.

Arthropoda: They have jointed legs on all or some of the body segments. The body is covered by a chitinous exoskeleton, that is shed from time to time and can be regrown.

5. Why are earthworms called the friends of farmers?

A. Earthworms are of great importance in agriculture. They loosen the soil, as they make their burrows in it. This helps the roots of the plants to breathe and grow deeper. Also, their waste is rich in nitrogen which increases the soil fertility.

6. Why are bryophytes called the amphibians of the plant kingdom?

A. Bryophytes grow on land like shady, moist walls and in damp soils but need water for their reproduction. So they are called the amphibians of the plant kingdom.

7. Are fungi harmful to us? Explain giving examples.

A. Yes, fungi are harmful to us due to many reasons.

- Many fungi cause diseases like ringworm and athlete's foot in man.
- When food is improperly stored, fungi contaminates it. Cheese, grains, fresh fruits and vegetables are destroyed by fungi.
- Some fungi can destroy wood also.
- Fungi infect ornamental plants.
- During damp conditions, fungi can destroy clothing, leather, etc.

8. Who are the dinosaurs? When were they found on the Earth?

A. From the study of fossils, it has been seen that 200 million years ago, reptiles were dominant on the Earth. They were found not only on the land but also in the sea water. The giant reptiles of that time were collectively called dinosaurs.

9. What are the uses of the openings on the body of poriferans?

A. Water enters the body of the poriferans through these pores. After circulating throughout the body, the water leaves the body through a large opening present at the top.

10. Mention the advantages of classification.

A. The advantages of classification are:

- In order to make the study of living organisms easier, they are arranged into groups on the basis of similar features.
- Since it is not possible to study the millions of living organisms separately, if we make a detailed study of any one member of a group, then we can know about all the other members of the group also. Thus it helps in easy identification of organisms.
- It is also possible to know the origin and descent of organisms, i.e., from where the organisms evolved.

**F. Define the following terms:**

1. Classification: Classification is a system of arranging living organisms into groups, depending upon their similar characteristics.

2. Species: The lowest category in classification is species. Species includes a group of organisms that can breed among themselves to produce a fertile young one.

3. Prokaryotic organism: prokaryotic organisms are organisms that have primitive nucleus, i.e., the nuclear membrane is absent or no definite nucleus is present.

4. Autotrophs: Organisms which can make their own food by the process of photosynthesis are known as autotrophs.

5. Nephridia: The excretory organs of annelids are called nephridia.

6. Binomial nomenclature: It is a system of naming given by Carolus Linnaeus, which divides the scientific name of all organisms into two parts – generic and specific name.

7. Cold-blooded animals: Animals whose body temperature vary with atmospheric temperature are known as cold-blooded animals. Eg, fishes, amphibians, etc.

8. Parasite : Parasites are animals that live on or inside the bodies of other animals or plants and obtain food from them. Eg, leech, lice, roundworm.

9. Binary fission: Binary fission is the method of reproduction, where first the DNA doubles itself. Then the cytoplasm divides by furrow formation and splits into two. The two DNA move to the two daughter cells.

10. Viviparous organisms: Animals who give birth to young ones are known as viviparous organisms. E.g, human, cat, dog, etc.

**G. Differentiate between the following by one point each :**

1. Frogs and toads

<b>Frogs</b>	<b>Toads</b>
1. Frogs are slender in appearance.	1. Toads are stumpy.
2. They have a smooth surface.	2. They have a rough skin with warts on it.

2. Crustacean and insect

<b>Crustacean</b>	<b>Insect</b>
1. Their head and thorax are fused in their body.	1. Their bodies have head, thorax and abdomen.
2. They have legs for locomotion.	2. They have wings along with legs for locomotion.

3. Flatworms and roundworms

<b>Flatworms</b>	<b>Roundworms</b>
1. They have a soft and flattened body.	1. They have a long and cylindrical body.
2. Their body has only one opening which serves as both mouth and anus.	2. Their body has two openings – mouth as well as anus.

4. Monocots and dicots

<b>Monocots</b>	<b>Dicots</b>
1. Seeds of these plants have only one seed leaf or cotyledon.	1. Seeds of these plants have two cotyledons.
e.g. rice, wheat, maize, etc.	e.g., pea, bean, gram, mango, etc.

5. Binary fission and multiple fission

<b>Binary fission</b>	<b>Multiple fission</b>
1. In this method first the DNA material of the parent doubles itself.	1. In this method, the nucleus of the parent amoeba divides repeatedly into many nuclei.
2. One amoeba gives rise to two daughter amoeba.	2. One amoeba produces many daughter amoeba.

6. Algae and fungi

<b>Algae</b>	<b>Fungi</b>
1. They are green plants.	1. They are non green plants.
2. They are mostly found in still water of ponds.	2. They grow under moist conditions.

7. Gymnosperm and angiosperm

<b>Gymnosperm</b>	<b>Angiosperm</b>
1. Seeds are exposed.	1. Seeds are enclosed in fruit.
2. Male and female cones are present.	2. Male and female flowers are present.

8. Myriapods and arachnids

<b>Myriapods</b>	<b>Arachnids</b>
1. The body of the myriapods have two sections head and trunk.	1. The front part of their bodies have head and thorax fused, while the back part is the abdomen.
2. They have many legs. Each segment has one or	2. They have four pairs of walking legs.

more pairs of legs.	
---------------------	--

**H. Find the odd one out.**

1. Yeast, Mould, Blue-green algae, Mushroom
2. Black rot, Cholera, Typhoid, Pneumonia
3. Rice, Gram, Maize, Wheat
4. Ferns, Liverworts, Clubmosses, Horsetails
5. Sycon, Cliona, Spongilla, Plasmodium
6. Snail, Oyster, Sea cucumber, Octopus
7. Whales, Sharks, Dolphins, Bats
8. Turtles, Snakes, Tortoises, Crocodiles
9. Tiger, Lion, Cat, Crab
10. Filaria worm, Earthworm, Roundworm, Hookworm

**I. The picture of a certain organism is given alongside. Study the picture and answer the questions that follow:**



1. Name the organism shown in the picture.  
A. Mushroom
2. Does it come under plant kingdom or animal kingdom?  
A. They neither belong to plant or animal kingdom.
3. To which group does it belong?  
A. Saccharomyces
4. Give two characteristics of this organism.  
They are non-green organisms.  
They grow mostly under damp and humid conditions.
5. Name another organism belonging to the same group as this one.  
A. Yeast and bread mould

**EXTRA NOTES:**

**True or false**

1. Monocotyledonous plants have seeds with two cotyledons. False
2. Angiosperms bear flowers and seeds. True
3. Bryophytes are called amphibians of plant kingdom. True
4. Mushrooms are a type of algae. False
5. All moulds are autotrophs. False
6. Amoeba uses contractile vacuole for excretion. True
7. Anthrax is a disease in animals. True
8. Vinegar is used for fermentation of sugary material by acetic acid bacteria. True
9. The lowest unit of classification is phylum. False
10. Reptiles are warm blooded animals. False

**State location and function:**

1. Rhizoids:

Location – they are root like structures present in bryophytes.

Function – they help to attach the plant body to the soil and also to absorb water and minerals.

2. Sori:

Location – On the undersurface of leaves of Pteridophyta

Function – They bear spores from which new plants can grow on germination.

3. Tentacles:

Location – They surround the mouth region of coelenterates

Function – They help in catching food

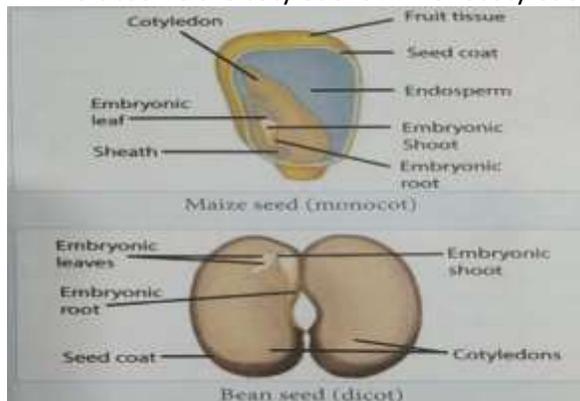
**Match the following: ( Direct answer)**

- |               |                  |
|---------------|------------------|
| 1. Myriapod   | centipede        |
| 2. Crab       | crustacean       |
| 3. Scorpion   | Arachnids        |
| 4. Octopus    | Devil fish       |
| 5. Sea urchin | echinoderm       |
| 6. Salamander | Amphibia         |
| 7. Trees      | Arboreal animals |
| 8. Birds      | Oviparous        |
| 9. Bear       | Omnivore         |
| 10. Bat       | Nocturnal mammal |

**Experiment:**

**1. Write an experiment to show the presence of cotyledons in monocot and dicot seeds.**

**Aim:** To observe the cotyledons in monocotyledonous and dicotyledonous seeds



**Procedure:** Take a few seeds of maize and rajma and soak overnight in water. Next morning take out seeds from water, remove their seed coats and observe carefully.

**Observation:** It will be seen that rajma seeds have two cotyledons and maize have one cotyledon.

**Conclusion:** Rajma is a dicotyledonous plant and maize is a monocotyledonous plant.

**Draw neat and labeled diagram:**

1. Euglena
2. Amoeba proteus