

**Class: XI**  
**Subject: Biology**  
**Topic: The living world**  
**No. of Questions: 25**

Q1. Why are living organisms classified?

Ans. There are millions of living organisms in this world. It is nearly impossible to study all the living organisms.

Q2. Define a taxon. Give some examples of taxa at different hierarchical levels.

Ans. Each category referred to as unit of classification, represent and is commonly termed as taxon. Taxonomic studies of all known organisms have led to the development of common categories such as kingdom, phylum and division etc.

Q3. Define and understand the following terms:

- a) Phylum – Classes comprising animals like fishes, amphibians, reptiles, birds along with mammals constitute the next higher category called phylum.
- b) Class – This category includes related orders.
- c) Family – Family has a group of related genera.
- d) Order – Order is the assemblage of families.
- e) Genus – Genus comprises a group of related species.

Q4. How is a key helpful in the identification and classification of an organism?

Ans. The keys are based on the contrasting characters generally in a pair called couplet. It represents the choice made between two opposite options. This results in acceptance of only one and rejection of the other. Each statement in the key is called a lead.

Q5. Illustrate the taxonomical hierarchy with suitable examples of a plant and an animal.

Ans. 1. Mangifera indica (mango)

Kingdom	Phylum	Class	Order	Family
PLANTAE	TRACHEOPHYTA	MAGNOLIOPSIDA	SAPINDALES	ANACARDIACEAE

2. Felis catus (domestic cat)

Kingdom:	Animalia
Phylum:	Chordata
Class:	Mammalia
Order:	Carnivora
Family:	Felidae
Subfamily:	Felinae
Genus:	Felis
Species:	F. catus

Q6. Define species.

Ans. Members that can interbreed to produce fertile offspring.

Q7. What is systematic?

Ans. It is the systematic arrangement taking into account the evolutionary relationships between organisms.

Q8. Give the names of two famous botanical gardens.

Ans. Kew (England) and National Botanical Research Institute (Lucknow), Indian Botanical Garden (Howrah).

Q9. What is the basis of modern taxonomical studies?

Ans. External and internal structure, structure of cell, development process and ecological information.

Q10. Why growth and reproduction cannot be taken as defining property of all living organisms?

Ans. Non living things can increase in mass by accumulation of material on surface. Many organisms do not reproduce (eg. Mules, sterile worker bees).

Q11. How is a taxon defined?

Ans. Each category in a taxonomical hierarchy represents a rank and is called a taxon.

Q12. What is the difference between Botanical garden and Herbarium?

Ans. Botanical garden- Collection of living plants

Herbarium- Collection of dried, pressed and preserved plant specimens on sheets.

Q13. What are the universal rules of nomenclature? What does 'Linn' refer to in *Mangifera indica* Linn?

Ans. Refer Page No. 7, NCERT.

'Linn' indicates that the species was first described by Linnaeus.

Q14. *Brassica campestris* Linn

- Give the common name of the plant.
- What do the first two parts of the name denote?
- Why are they written in italics?

Ans. a) Field mustard

b) *Brassica* denotes genus and *campestris* denotes species.

c) Because biological names are generally in Latin.

Q15. Give Mayr's definition of a species.

Ans. "A species is a group of actually or potentially inbreeding populations that are reproductively isolated from other such groups."

Q16. Briefly explain polytypic genus.

Ans. A genus containing more than one species is called polytypic genus e.g. Panthera, Solanum.

Q17. Briefly distinguish between holotype and neotype specimen.

Ans. Original specimen is called holotype specimen. A new specimen when the original is lost is referred to as neotype specimen.

Q18. Explain why Amoeba is living and a sand particle is non living matter?

Ans. Amoeba exhibits the distinctive characteristics of living organisms whereas a sand particle does not. For example, Amoeba shows growth, reproduction, metabolism, ability to sense the environment and many other characteristics of living being. The sand particle fails to exhibit the characteristics of living organisms.

Q19. What changes are needed to convert a sand particle into a prokaryotic cell?

Ans. The following changes are needed:

- a. Inner part of sand particle has to be removed and living protoplasm is to be introduced into it.
- b. The outer covering is also replaced by a cell wall.
- c. The living protoplasm should contain nucleoid.
- d. The protoplasm should not contain any other organelles except few ribosomes (70S).

Q20. Do you think zoological parks, museum and botanical gardens are meant for recreational purpose or they have some scientific value?

Ans. Zoological parks, museums and botanical gardens help scientists to study the diversity of living organisms in their natural habitats or from the actual specimens.

Q21. Which one of the following organisms is scientifically correctly named, correctly printed according to the International Rules of Nomenclature and correctly described?

- a) *Musca domestica* – the common house lizard, a reptile
- b) *Plasmodium falciparum* – a protozoan pathogen causing the most serious type of malaria
- c) *Felis tigris* – the Indian tiger, well protected in Gir forests
- d) *E. coli* – full name *Entamoeba coli*, a commonly occurring bacterium in human intestine.

Ans. (b)

Q22. A group of related genera, with still less number of similarities as compared to the genus and species, constitutes

- a) Order
- b) Class
- c) Family
- d) Division

Ans. (c)

Q23. Botanical gardens and zoological parks have

- a) Collection of endemic living species only
- b) Collection of exotic living species
- c) Collection of endemic and exotic living species
- d) Collection of only local plants and animals

Ans. (c)

Q24. The botanical name of soybean is

- a) *Cajanus cajan*
- b) *Glycine max*
- c) *Glycyrrhiza glabra*
- d) *Dolichos lablab*

Ans. (b)

Q25. The famous botanical garden of Kew is located in

- a) India
- b) England
- c) Germany
- d) France

Ans. (b)

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