

## Biology Class 8

### Chapter 1

#### Introduction to biology

Learn the complete topics from chapter 1 (pg.no.2, 3, 4, 5, 7, 10, 11, 12, and 13)

#### Answer all the questions:

1. Define science.
2. Define biology.
3. What are the three main divisions of biology? Also give examples.
4. Define all the branches of biology, with examples.
5. Define molecular biology
6. What are parasites? Give examples.
7. What are the major human problems today?
8. What is the difference between microbiology and cell biology?
9. What is meant by fossils?
10. What is meant by biogeography?
11. Define biometry.
12. Write the importance of surgery.
13. What is animal husbandry?
14. Define biophysics.
15. What is the role of Bu-ali-Sina in biology?
16. Name the famous books of Jabir-Bin-Hayan.
17. What is meant by bio elements?
18. Differentiate between micromolecules and macromolecules.
19. Define habitat, with example.
20. Define population, with example.
21. What is specie? Give example.
22. What is meant by zone of life or biosphere?
23. Write down the levels of organization in sequence.
24. What is organ system?
25. What are unicellular organisms? Give examples.
26. Define colonial organization.
27. What is volvox?
28. What is meant by multicellular organization?
29. Name the vegetative and reproductive parts of mustard plant.
30. Write the scientific name of frog and mustard plant.
31. Write two uses of mustard plant.
32. Name any four unicellular organisms.

#### Long question

1. How biology is related to other sciences? Describe any four.
2. Explain the molecular and tissue level in organisms.
3. Explain any four careers in biology
4. Explain the types of cellular organization.

## Chapter 2

### Solving a biological problem

**1. Define scientific method.**

The method which is used by all scientists to solve a problem is called scientific method.

**2. What is a biological method?**

The scientific method in which biological problems are solved is called biological method.

**3. Write down the names of steps included in biological method.**

- Recognition of biological problem
- Observations
- Hypothesis formulation
- Deductions
- Experimentations
- Summarization of results
- Reporting the results

**4. Differentiate between qualitative and quantitative observations.**

Qualitative	Quantitative
1. Def: The observations that includes our five senses and does not include any number. 2. Example: freezing point of water is lesser than its boiling point.	1. Def: The observation that includes the numbers and digits is called quantitative observations. 2. Example: freezing point of water is 0 degree centigrade and its boiling point to 100 degree centigrade.

**5. Define hypothesis.**

Tentative explanation of observations is called hypothesis.

**6. Write characteristics of hypothesis.**

A good hypothesis should have following characteristics:

- It should be a general statement.
- It should be a tentative idea.
- It should agree with available observations.
- It should be kept as simple as possible.
- It should be testable and potentially falsifiable.

**7. Differentiate between control and experimental control group.**

Control group	Experimental group
Group of healthy persons is called control group. <b>Example:</b> in an experiment to test a necessity of carbon dioxide for photosynthesis plant with freely available carbon dioxide is control group.	Group of effected persons called experimental group. <b>Example:</b> in an experiment to test necessity of carbon dioxide for photosynthesis a plant with no CO <sub>2</sub> available is experimental group.

**8. What do you mean by the word malaria?**

The Italian words “mala” means bad and “aria” means air.

**9. What is female anopheles and to which disease it relates?**

Female anopheles is a mosquito and it relates to malaria.

**10. What were the four major observations of malaria in the last part of 19<sup>th</sup> century?**

Observations:

- Malaria and marshy areas have some relation.
- Quinine is an effective drug for treating malaria.
- Drinking water of marshes does not cause malaria.
- Plasmodium is seen in the blood of malarial patients.

**11. Write down two controls of malaria.**

Control of malaria: followings are some control of malaria.

- If sleeping places are open then use smoky fire to keep away mosquito.
- Use wire gauze on windows and doors to keep away mosquitoes to control malaria.

**12. Write down the important observations of A.F.A king**

Some important observations of A.F.A king were:

- People who slept outdoors were more likely to get malaria than those who slept indoors.
- People who slept under fine nets were less likely to get malaria than those who did not use such nets.
- Individuals who slept near a smoky fire usually did not get malaria.

**13. Why female mosquito inject saliva in to wound before drawing blood.**

A female mosquito injects a small amount of saliva into the wound before drawing blood. So that, the saliva prevents the blood from clotting in her food canal.

**14. Why do we do itching after biting of mosquito?**

When a female mosquito pierces the skin with her mouth parts, she injects a small amount of saliva into the wound before drawing blood. This kind of saliva is caused of itching.

**15. How aedes mosquito spreads dengue fever.**

When aedes mosquito bites on the skin of any person, then it pierces then skin with its mouth parts and injects a small amount of saliva there. This saliva contains germs of dengue, which latter cause's dengue fever.

**16. Define scientific law.**

A scientific law is uniform or constant fact of nature.it is an irrefutable theory. Examples of biological laws are Hardy Weinberg law and Mendles law of inheritance.

**17. What is meant by productive theory?**

The theory that keep on suggesting new hypothesis and so testing goes on is called productive theory.

**18. What is bioinformatics?**

Bioinformatics refers to the computational and statistical techniques for the analysis of biological data.

**19. Differentiate between ratio and proportion.**

Ratio	Proportion
Def: When the relation between a and b is expressed in the form of quotient, then such relation is called a ratio. A ratio between by division ( $\div$ ) or colon ( $:$ ) sign between two quantities.	Def: Proportion means to join two equal ratios by the sign of equality(=).For example: $a:b=c:d$ is a proportion between two ratios .This proportion may also be expressed as $a:a::c:d$ .When three values in

Example: For example the ratio between 50 malarial patient and 150 healthy patients is 1:3.	a proportion are known ,the fourth one (X) can be calculated.
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**20. What is the relation of cinchona and Quina –quina?**

Many plants from America were sent back to Europe to be used as medicines. The bark of a tree known as Quina-quina was very suitable for curing fevers.it was so beneficial that soon it was impossible to carry enough bark to Europe.Some dishonest merchants began to substitute the bark of another tree; cinchona which closely resembled quina-quina. This dishonesty proved much valuable for mankind. Cinchona bark was found to be excellent for treating malaria.

## Chapter 3

### Biodiversity

#### Short answer questions

**1. Define biodiversity.**

The term biodiversity is derived from two Greek words Bio and diversity. Diversity means variety within a species and among species. Biodiversity is a measure of the variety of organisms present in different ecosystems.

**2. What is the difference between flora and fauna?**

Flora	Fauna
1. Def: The variety of plants in a particular region is known as its flora. 2. Example: Variety of plants in tropics and temperate regions.	Def: the variety of animals in a particular region is known as its fauna. 2. Example: Variety of animals in polar regions.

**3. What is the importance of biodiversity?( learn this as long answer also)**

1. Medicinal importance: A significant proportion of drugs are derived directly or indirectly from biological sources.
2. Source of food: biodiversity provides food for humans.
3. Industrial importance: A wide range of industrial materials e.g. Building materials, fibers, dyes, resins, gums, adhesives, rubber and oil are derived directly from plants.
4. Balancing ecosystem: biodiversity plays an important role in making and maintaining ecosystem.
5. Regulating chemicals of environment: it plays a vital role in regulating the chemistry of our atmosphere and water supply.
6. Recycling: Biodiversity is directly involved in recycling nutrients and providing fertile soils.

**4. Define classification:**

The division of living organisms into their groups and sub groups based upon the similarities and differences is called classification.

**5. Define taxonomy.**

The branch of biology which deals with the classification is called taxonomy.

**6. Define systematics.**

The branch of biology which deals with the classification and also traces the evolutionary history of organisms is known as systematics.

**7. Write the aims of classification.**

1. To determine similarities and differences among organisms so that they can be studied easily.
2. To find the evolutionary relationships among organism.

**8. What is the basis of classification?**

Classification is based on relationship amongst organisms and such relationship is got through similarities in characteristics. These similarities suggest that all organisms are related to one another at some point in their evolutionary histories .However, some organisms are more closely related to pigeons than to insects.it means that these two former have common evolutionary histories. When biologists classify organisms into groups and subgroups, the similarities are seen in external and internal structure and states of development.

**9. Define taxonomic hierarchy.**

The groups into which organisms are classified are known as taxonomic categories or taxa. The taxa form a ladder called the taxonomic hierarchy.

**10. What is the basic unit of classification?**

Species is the basic unit of classification. Species is a group of organisms which can interbreed freely among them and produce fertile offspring, but are reproductively isolated from all other such groups in nature.

**11. Write the classification of human**

Taxa	Human
Kingdom	Animalia
Phylum	Chordata
Class	Mammalia
Order	Primates
Family	Hominidae
Genus	<i>Homo</i>
Species	<i>H.sapiens</i>

**12. Write the classification of Pea Plant**

Taxa	Pea Plant
Kingdom	Plantae
Phylum	Magnoliophyta
Class	Magnoliopsida
Order	Fabales
Family	Fabaceae
Genus	<i>Pisum</i>
Species	<i>P. sativum</i>

**13. Write down the scientific name of Human being and Pea Plant?**

1. Scientific name of Human Being is *Homo sapiens*.
2. Scientific name of Pea Plant is *Pisum Sativum*.

**14. Mule is result of unnatural cross. Why?**

Two different but closely related species can interbreed un-naturally but they can produce only infertile offspring through their un-natural mating.

**Example:** Mule is incapable of sexual reproduction.

**15. What is difference between mode of nutrition of fungi and animals?**

Fungi are multicellular heterotrophs and have absorptive mode of nutrition.	Animals are multicellular heterotrophs and have ingestive mode of nutrition.
Mostly fungi are decomposers.	Animals digest their Food inside the body in specific parts for digestion.

**16. What is meant by Two Kingdom Classification?**

This oldest system and classifies all organisms into two kingdoms i.e. Plantae and Animalia. According to it all organisms that can prepare food from simple inorganic materials and thus can store energy are autotrophs and are included in Kingdom Plantae. On the other hand, the organisms that cannot synthesize their food and depend on autotrophs or others are heterotrophs and are included in Kingdom Animalia. According to this system bacteria, fungi, and algae were included in Kingdom Plantae.

**17. Write the names of two kingdoms in Two Kingdoms system?**

The names of Two Kingdom in Two Kingdoms are;

**Kingdom Animalia:**

The organisms that cannot synthesize their food and depends on autotrophs or others are heterotrophs and are included in Kingdom Animalia.

**Kingdom Plantae:**

All organisms that can prepare food from simple inorganic materials like autotrophs are included in Kingdom Plantae.

**18. What are differences between Autotrophs and Heterotrophs?**

All those organisms which do not depend upon others organisms for getting their food are autotrophs.	All those organisms which depend upon others organisms for getting their food are autotrophs.
Plants.	Animals.

**19. What are Autotrophic or organisms? Give an example.**

All those organisms which do not depend upon others organisms for getting their food are autotrophic organisms.

**Example:**

All green plants are examples of autotrophic organisms because they produce their food themselves.

**20. Who and when introduced the five-kingdom Classification system?**

In 1967, Robert Whittaker introduced the five Kingdom Classification System.

**21. Write the names of five Kingdom System?**

1. Monera
2. Protista
3. Fungi
4. Plantae
5. Animalia

**22. Write three characteristics of Kingdom Monera?**

1. It includes prokaryotic organisms.
2. Monerans are unicellular.
3. It includes two different types of organisms like bacteria and cyano-bacteria.

**23. Give reason why viruses not include in five Kingdoms?**

Viruses are not included in five Kingdom systems as they are not considered to be livings. Viruses are at the border line of living and non-living.

**24. What is meant by acellular?**

The particals that not have cellular organization called acellular. Like Viruses are not considered as organisms and thus are not including in the five kingdom classification system.

**25. Write name of any two decomposers?**

1. Bacteria
2. Fungi

**26. What is meant by Viroid?**

1. Viroids are acellular like virus.
2. Viroids consist of only RNA.
3. Viroids cause diseases in plants.
4. Viroids like viruses does not include in five kingdoms classification system.

**27. Differential between prions and viroids?**

Prions are composed of proteins only and viroids are composed of circular RNA only.

**28. How do we write scientific name?**

Scientific names are usually printed in italics such as *Homo sapiens*. When handwritten they are underlined like *Homo sapiens*.

**29. Write down scientific name of Onion and Houses Crow?**

House crow: *Corvus splendens*

Onion: *Allium cepa*

**30. What is meant Endangered Species?**

A species is called endangered when it is risk of extinction in near future from an ecosystem like Indus dolphins, Marco polo sheep, and Houbara bustard.

**31. Name any Two Endangered Species in Pakistan?**

1. Indus Dolphin
2. Marco polo sheep

**32. What is different between extinct and endangered species?**

In an ecosystem a species is called extinct when there is no doubt that the last individual of that species has died in that ecosystem.	A species is called endangered when it is at risk of extinction in near future.
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**33. What is meant by Soil erosion?**

Heavy rainfall washes soil into rivers essential nutrients are washed out of soil and it is called soil erosion.

**34. Write two reasons of loss of Biodiversity?**

1. Deforestation
2. Over Hunting

**35. What are the effects of over hunting on animal's population?**

Over-Hunting has been a significant cause of the extinction of hundreds of species and the endangerment of many more species.

**36. Write names of two projects for conservation of biodiversity in Pakistan?**

1. Himalayan Jungle Project
2. Northern areas conservation project.

**37. Write the name of national animal of Pakistan?**

Markhor is the national animal of Pakistan.

**38. Write the name of national bird of Pakistan?**

Chakor partridge is the national bird of Pakistan

**Long questions(learn the complete topics for long answers from book)**

1. Write a note on three kingdom classification system
2. Write a note on five kingdom classification systems.
3. Describe the significance/importance of binomial nomenclature.
4. Write a note on endangered species of Pakistan.



