

Biology Test 1

Subjective Test

- (i) *All questions are compulsory.*
- (ii) *Questions 1 to 12 are very short answer type questions. These questions carry one mark each.*
- (iii) *Questions 13 to 20 are short answer type questions. These questions carry two marks each.*
- (iv) *Questions 21 to 24 are also short answer type questions. These questions carry three marks each.*
- (v) *Questions 25 to 26 are long answer type questions and carry five marks each.*

Question 1 (1.0 marks)

Name two types of plant tissues.

Solution:

Meristematic tissues and permanent tissues

Question 2 (1.0 marks)

Which type of meristematic tissue helps regenerate the parts of a plant eaten by herbivores?

Solution:

Intercalary meristem

Question 3 (1.0 marks)

What is a hypertonic solution?

Solution:

A concentrated solution having a lower concentration of water as compared to the cell immersed in it is called a hypertonic solution.

Question 4 (1.0 marks)

Name two cellular components present in plant cells, and **not** in animal cells.

Solution:

Cell wall and chloroplast

Question 5 (1.0 marks)

What is plasmolysis?

Solution:

When a cell loses water through osmosis, there is a shrinkage or contraction of the contents of the cell away from the cell wall. This phenomenon is called plasmolysis.

Question 6 (1.0 marks)

What is the primary characteristic of the classification of living organisms?

Solution:

The presence or absence of membrane-bound organelles is the primary characteristic of the classification of living organisms. On this basis, organisms are classified as prokaryotes and eukaryotes.

Question 7 (1.0 marks)

Which phylum has organisms with a pseudocoelom?

Solution:

Nematoda

Question 8 (1.0 marks)

Fill in the blanks.

(i) *Ascaris* is a parasite found in the _____ of human beings.

(ii) *Wuchereria* causes _____.

Solution:

(i) *Ascaris* is a parasite found in the small intestine of human beings.

(ii) *Wuchereria* causes elephantiasis.

Question 9 (1.0 marks)

What do you understand by the term 'symptoms'?

Solution:

The 'symptoms' of a disease are the indications that can be felt by the patient on developing a disease.

Question 10 (1.0 marks)

Name any two diseases that commonly infect poultry.

Solution:

Bird flu and fowl pox

Question 11 (1.0 marks)

Name a plant and an animal source of fat.

Solution:

Plant source of fat – Mustard oil

Animal source of fat – Egg yolk

Question 12 (1.0 marks)

Mention any two features of phylum Echinodermata.

Solution:

Features of phylum Echinodermata:

(i) The animals have an organ-system level of organisation.

(ii) The animals are made up of three germ layers. Therefore, they are triploblastic.

Question 13 (2.0 marks)

What do you think is the importance of biodiversity?

Solution:

Importance of biodiversity:

- (i) A wide range of materials such as fibres, dyes, resins are obtained from plants.
- (ii) A variety of plants and animals are utilised as sources of food.
- (iii) Medicinal plants act as sources of drugs.
- (iv) Plants and animals also have a cultural and aesthetic value.

Question 14 (2.0 marks)

Mention two ways by which diseases can be treated.

Solution:

Diseases can be treated by:

- (i) **Reducing the effect of a disease** – In this method, the symptoms of the disease are reduced. It includes taking medicines to bring down fever or to reduce pain.
- (ii) **Killing the cause of a disease** – It includes the administration of a relevant microbe-specific medicine which kill the particular microbe responsible for causing the disease.

Question 15 (2.0 marks)

What are air-borne diseases? Give examples.

Solution:

Air-borne diseases are the ones that are transmitted when disease-causing microorganisms are expelled into the air while coughing, sneezing, talking, etc. These microorganisms travel through dust particles or water droplets in air to reach the other individuals.

Some common air-borne diseases are chicken pox, swine flu, tuberculosis, influenza, etc.

Question 16 (2.0 marks)

State the functions of epithelial tissues.

Solution:

Functions of epithelial tissues:

- (i) To protect the animal body – It protects the underlying cells from injury, water loss, bacterial infections, etc.
- (ii) To form barriers to keep different body systems separated from each other
- (iii) To regulate the exchange of materials between different parts of the body, and between the body and the external environment

Question 17 (2.0 marks)

Name 5 types of connective tissues.

Solution:

5 types of connective tissues are –

- (i) Areolar connective tissue
- (ii) Dense regular connective tissue
- (iii) Adipose connective tissue
- (iv) Skeletal connective tissue
- (v) Fluid connective tissue

Question 18 (2.0 marks)

What do you mean by composting? How is vermicomposting different from composting?

Solution:

Composting is the process in which organic waste material is decomposed in pits to release nutrients.

When composting is done using earthworms, it is called vermicomposting.

Question 19 (2.0 marks)

What are the main functions of ER?

Solution:

The main functions of ER are –

- (i) ER serves as a channel for the transport of biomolecules between various regions of the cytoplasm, and between the cytoplasm and the nucleus.
- (ii) It also acts as a cytoplasmic framework, providing the surface for some biochemical activities and mechanical support.
- (iii) In the liver cells of vertebrates, SER plays a role in the detoxification of many poisons and drugs.
- (iv) RER bears ribosomes, which are the sites for protein synthesis, while SER is responsible for the synthesis of fats.

Question 20 (2.0 marks)

Mention some diseases caused by fungi and viruses.

Solution:

Diseases caused by fungi – Athlete's foot and ringworm

Diseases caused by viruses – AIDS and swine flu

Question 21 (3.0 marks)

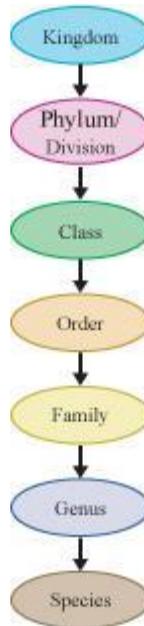
Explain the hierarchy of classification.

Solution:

(i) The hierarchy of classification was developed by Carolus Linnaeus. It refers to the organisation or classification of organisms in the order of rank or importance.

(ii) According to this system, **kingdom** is the highest rank. It is divided into **phyla** or divisions, which are further subdivided into **classes**. Further divisions include **order**, **family**, **genus** and **species**, in that order.

(iii) Thus, species is the basic unit of classification.



Question 22 (3.0 marks)

How are lysosomes produced? Write two functions of lysosomes.

Solution:

Lysosomes are produced in the following manner.

(i) Certain enzymatic proteins are created in RER.

(ii) These proteins, after getting packed into small vesicles, are sent to the Golgi apparatus.

(iii) In the Golgi apparatus, the vesicles are modified by the preparation of digestive enzymes.

(iv) Small vesicles are shot into the cytoplasm, and these vesicles are called lysosomes.

Functions of lysosomes:

(i) Lysosomes destroy foreign materials that enter the cell.

(ii) Dead and worn-out organelles are removed by lysosomes.

(iii) Cells are autolysed by lysosomes, and their contents are released within the cell.

Question 23 (3.0 marks)

When kidney beans are soaked overnight in water, they swell. Explain.

Solution:

The kidney beans swell due to a phenomenon called osmosis. Osmosis is the diffusion of water from a region of its higher concentration to a region of its lower concentration.

Since the kidney beans have a lesser concentration of water as compared to the outside medium (i.e., pure water), water diffuses into the kidney beans. As a result, they swell.

Question 24 (3.0 marks)

Name the three types of muscular tissues and list the functions of each.

Solution:

Three types of muscular tissues are –

- (i) **Skeletal muscles:** These are voluntary muscles that help in bodily movements. They are attached to body parts such as hands, legs, tongue, etc.
- (ii) **Smooth muscles:** These are involuntary muscles that help in various vital life processes such as movement of food through the oesophagus, conduction of air through the lungs, etc.
- (iii) **Cardiac muscles:** These are the involuntary muscles present in the heart. They help in the contraction and relaxation of the heart.

Question 25 (5.0 marks)

Answer the following questions.

- (i) Write a short note on modes of transmission of communicable diseases.
- (ii) Write a short note on infections agents.

Solution:

(i) Communicable diseases spread through the following ways.

- (a) **Through air** – The microorganisms that cause diseases such as influenza, chicken pox, etc., are transmitted through air as and when the infected person sneezes or coughs.
- (b) **Through water** – The microorganisms that cause diseases such cholera, typhoid, etc., spread through contaminated water containing the faeces of infected individuals.
- (c) **Blood to blood contact** – This occurs during blood transfusion, pregnancy, etc. AIDS is transmitted in this way.
- (d) **Animal vectors** – Insects carry disease-causing microbes in their saliva and transmit them to the healthy individuals by biting them. Malaria and dengue is spread in this way
- (e) **Direct physical contact** – AIDS and syphilis are sexually-transmitted diseases.

(ii) Infectious agents are organisms that cause diseases, e.g., bacteria, fungi, protozoa, viruses and some multicellular organisms.

- (a) *Bacteria* – These are unicellular organisms that cause diseases such as typhoid, cholera, etc.
- (b) *Fungi* – These are multicellular eukaryotes which are heterotrophic and lack chlorophyll. They cause athlete’s foot, ringworm, etc.
- (c) *Protozoa* – These include simple eukaryotic unicellular organisms that cause diseases such as amoebiasis, malaria, kala-azar, etc.
- (d) *Viruses* – These are tiny organisms that cannot grow, multiply or reproduce on their own. They are essentially parasites as they need the host’s machinery for multiplying. They cause diseases such as AIDS, jaundice, swine flu, etc.
- (e) *Multicellular organisms* – These are parasitic worms. Pinworms, hookworms, tapeworms, etc., come under this category. They cause diseases such as liver rot, anaemia, etc.

Question 26 (5.0 marks)

Answer the following questions.

- (i) State the differences between striated, smooth and cardiac muscles.
- (ii) Which meristem increases the girth of the stem and the root?
- (iii) Name the parenchyma found in aquatic plants which contains large air cavities.

Solution:

(i)

Striated Muscles	Smooth Muscles	Cardiac Muscles
These are voluntary muscles.	These are involuntary muscles.	These are involuntary muscles.
They show striations due to the presence of ultimate light and dark bands.	No bands are present.	Faint bands are present.
These muscles are present in body parts that are under our control, e.g., hands, legs, tongue, etc. Thus, they help in body movements.	These muscles are present in internal organs such as the alimentary canal, blood vessels, etc. Thus, they help in vital life processes.	These muscles are present only in the heart. They help in the contraction and relaxation of the heart.
They contract rapidly and undergo fatigue.	They contract slowly and do not undergo fatigue.	They contract rapidly, but never get fatigued.

(ii) Lateral meristem

(iii) Aerenchyma