

**DISTRICT PUBLIC SCHOOL & COLLEGE, KASUR**



**NOTES/HOME TASK/WORK SHEET FOR**

**CLASS: 7th**

**SUBJECT: G. SCIENCE**

**1st TERM SYLLABUS: UNIT (1-2-3)**

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## Structure of living organisms

### Class 7<sup>th</sup>

#### Answers to Exercises in Unit 1

#### 1. (a) Name the vegetative and reproductive parts of a plant.

Ans. The vegetative parts of a plant are stem, roots, and leaves. The reproductive parts of a plant are flowers.

#### (b) Describe the stem of a plant.

Ans. The stem is the part of a plant which grows above the ground. It is usually erect and upright but some stems grow horizontally along the ground. Some stems are long, thin, and weak or they are thick and fleshy. Some stems grow underground and store food. Stems bear leaves, buds, flowers, and fruits. They also transport water from the roots to the leaves and prepared food from leaves to all parts of the plant.

#### (c) Name and describe the different types of root.

Ans. The different kinds of roots are: tap roots, fibrous roots, adventitious roots. Some roots have one thick main root from which branch roots grow. Such roots, like carrots and radishes, are called tap roots. In some plants, like grass, many branched roots of the same size grow out at the same time. Such roots are called fibrous roots. Some roots, like the onion bulb, grow directly from the stem. These are called adventitious roots.

#### (d) Explain the functions of a leaf.

Ans. The leaf manufactures food for the plant. Stomata in the leaves help in gaseous exchange. Some thick and fleshy leaves store food.

#### (e) Describe the male and female reproductive parts of a flower.

Ans. **Male reproductive Part.**

The male reproductive part of the flower is called an androecium. It forms the third whorl. It is composed of stamens. Each stamen has a filament which is a thin stalk and an anther which is attached to the filament and contains four pollen sacs. The male sex cells are pollen grains which are produced inside the pollen sacs.

#### **The female reproductive part**

The female reproductive part of the flower is called the gynoecium. It is composed of carpels. Each carpel is composed of an ovary, style, and stigma. Ovary which is the swollen basal part contains the female sex cells called ovules. The style is a thin stalk and the stigma which is the flat tip of the carpel, is sticky and receives the pollen grains during pollination.

#### (f) What is a skeleton? What are the different types of skeletons found in animals?

Ans. The hard material which supports and gives shape to the body of an animal is called skeleton. The types of skeleton are: hydrostatic skeleton, exoskeleton, and endoskeleton.

#### **Hydrostatic skeleton.**

Some soft-bodied animals like earthworms and caterpillars do not have hard skeletons. Their bodies are supported by a liquid which is present in the cells and in the spaces between them. This type of a skeleton is called a hydrostatic skeleton.

#### **An exoskeleton.**

An exoskeleton is found in most invertebrates. The bodies of insects are covered by a hard, tough skin or cuticle which is made of a strong, waterproof

material called chitin. The cuticle is composed of plates and hollow tubes which not only protect and support the body, but also give it a specific shape. Movement is brought about by muscles which are attached to the inside of the exoskeleton.

### **Endoskeleton.**

All vertebrates are supported by a hard internal skeleton called the endoskeleton. The endoskeleton is made up of bones of different shapes and sizes. It grows with the body of the animal. It supports the body and gives it shape. It protects the internal organs and helps in the movement of the body. The long bones produce red and white blood cells.

2 **Write two important functions of the following. Root, stem, leaf, flower, sensory organs, skeleton**

Ans. **Root.**

A root fixes the plant firmly in the soil. It absorbs and mineral salts from the soil. It may store food.

### **The stem**

The stem bears leaves, buds, flowers, and the fruit of a plant. It spaces out the leaves so that each leaf can get air and sunlight. It transports water from the roots to the leaves. The stem also transports prepared food from the leaves to all parts of the plant.

### **Leaf**

A leaf manufactures food for the plant by photosynthesis. Stomata in the leaf help in gaseous exchange. Some thick and fleshy leaves store food.

### **Flower**

A flower helps to make fruits and seeds.

### **Sensory organs**

Sensory organs help the animal to detect changes in its surroundings and to react to them accordingly.

### **Skeleton**

A skeleton helps to support and protect the internal organs of the body. It also helps to bring about movement.

Q. 6. Match the part of the body to its description.

**Ans.**

<b>Part of the body</b>	<b>Description</b>
Head	contains the mouth and the sensory organs
Trunk	contains the important organs and systems
Exoskeleton	is composed of plates and hollow tubes which protect and support the body
Cuticle	gives shape and support s the body of animals
Hydrostatic skeleton	supports soft-bodied animals by a liquid present between the cells
<b>Endoskeleton</b>	made up of bones of different sizes and grows inside the body
Moulting	is the process when the cuticle is shed and a new one grows in its place
Bones	are hard and made up living cells and mineral substances

## **Unit # 2**

### **Organ systems in human beings**

#### **Answers to Exercises in Unit 2**

**1. . Name the correct part of the digestive system:**

- Ans.** (a) teeth (b) mouth (c) stomach  
 (d) pancreas (e) liver (f) glands in the intestines  
 (g) large intestine (h) anus (i) villi

**2. (a) define respiration.**

**Ans.** Respiration is the process by which food is broken down, or oxidized in the body to release energy

**(b) What gas is needed for respiration?**

**Ans.** Oxygen

**(c) What gas is produced by respiration?**

**Ans.** carbon dioxide

**(d) Where does gaseous exchange take place in the lungs**

**Ans.** alveoli

**(e) Which structure protects the lungs?**

**Ans.** rib cage

**(f) Differentiate between breathing and burning.**

**Ans.** breathing takes place in living organisms. It releases energy slowly. The rate of respiration can be controlled. It produces only heat.

**3. Arranging the activities in the correct sequence:**

**Ans.** The diaphragm contracts.  
 The intercostal muscles contract.  
 The chest gets larger.  
 Air is forced into the lungs.  
 The diaphragm relaxes.  
 The intercostal muscles relax.  
 The chest gets smaller.  
 Air is forced out of the lungs.

**Unit # 3****Transport systems in plants and animals****Answers to Exercises in Unit 3****2. (a) What is the heart made of**

**Ans.** The heart is made of a special kind of muscle called 'cardiac muscle'.

**(b) What stops blood flowing backwards through the heart?**

**Ans.** Valves present between the atria and the ventricles stop the blood from flowing backwards through the heart.

**(c) What is a heartbeat?**

**Ans.** The heart pumps blood by contracting and relaxing. One complete contraction and relaxation is called a heart beat.

**(d) How many time does the heart normally beat?**

**Ans.** The heart normally beats about 70 times in a minute.

**(e) What is a capillary?**

**Ans.** Arteries divide into small thin-walled blood vessels called capillaries. They penetrate into all the tissues of the body. Exchange of food, gases, and materials takes place by diffusion through the thin capillary walls.

**3. (a) Why is the breathing rate different for each activity?**

**Ans.** The body needs more energy when it is working harder, so the breathing rate increases.

**(b) Why is the pulse rate different for each activity?**

**Ans.** The heart beats normally when the body is at rest, but it has to work more when the body is working harder.

(c) **What would the pulse rate and breathing rate be after vigorous activity?**

Ans. The pulse rate would be over 100 times per minute. The breathing rate would be over 25 times per minute.

4 (a) **What is the medium of transport in flowering plants.?**

Ans. water

(b) **What is the medium of transport in mammals?**

Ans. blood

5. **What is the purpose of the valves between the atria and ventricles?**

Ans. Valves inside the heart help the blood to circulate in one direction only. They stop the backward flow of blood.

6. **How do substances move from the blood to the body cells?**

Ans. . The transfer of food, gases, and excretory materials between the blood and the cells takes place by diffusion through the thin capillary walls.

7. **How is water lost from a plant?**

Ans. Plants lose water vapour into the atmosphere by evaporation. The water passes through tiny holes called stomata which are found mainly on the lower side of leaves. This process is called transpiration.

8. **What is the importance of transpiration for a plant?**

Ans. It is important because it helps in the transportation of water in the plants and it also helps a plant to keep cool in summer.

9. (a) **differentiate between an artery and a vein**

Ans. An artery is a blood vessel that takes blood away from the heart. It has thick muscular walls to withstand the high pressure of the blood. It usually lies deeply embedded inside the body. It divides into small thin-walled vessels called capillaries. Capillaries join up to form veins. A vein returns blood to the heart. It is wider than an artery and has thinner walls. It has valves to make sure that the blood flows in one direction only. The blood pressure in an artery is usually low.

(b) **differentiate between xylem and phloem.**

Ans. In flowering plants materials are circulated in a system of tubes called the vascular system. The vascular system of plants is composed of specialized tissues called xylem and phloem. Xylem is made up of long, dead cells called vessels. Vessels have thick walls. They carry water from the roots, through the stem to the veins in the leaves. Phloem is made up of long thin walled tubes called sieve tubes. Sieve tubes are made of living cells whose horizontal walls have tiny holes. Food flows from the leaves to other parts of the plant through the sieve tubes.

(c) **differentiate between photosynthesis and respiration.**

Ans. Photosynthesis is a process by which green plants make their own food in the presence of sunlight. It takes place in the green parts of a plant. Oxygen gas is released during photosynthesis. Respiration is a process by which food is oxidized to release energy. It takes place in all the cells of the body. Carbon dioxide gas is released during respiration, along with heat energy.

(d) **Differentiate between transpiration and circulation.**

Ans. Water flows in a continuous stream through a plant. It enters through the roots and flows up the xylem vessels of the root and stem to the leaves and diffuses out of the stomata in the leaves. This evaporation of water from the leaves is called transpiration. Transpiration is the main force which moves water through a plant. Circulation of blood takes place in the blood vascular system which is composed of the heart, arteries, and veins. It helps to circulate food,

oxygen, and food materials inside the body. It also helps to remove waste products such as carbon dioxide and urea from the body.

(e) **A root hair and a capillary.**

Ans. The absorption of soil water by plants is done by the root hairs which occur in a small zone a short distance behind the root tip. Each root hair is only a part of a cell; however, the vast number of root hairs helps to bring about a very large increase in the absorbing area of the root.

A capillary is a thin walled blood vessel which forms a connection between an artery and a vein. Capillaries penetrate into all the tissues of the body. The transfer of food, gases, and excretory materials takes place by diffusion through the thin capillary walls.

### MCQs

- (a) The stem, root, and leaves are the parts of a plant  
vegetative reproductive characteristic [vegetative]
- (b) The part of the plant that bears the leaves, buds, flowers, and fruits of the plant is . Roots leaves stem [stem]
- (c) The flat green part of the leaf is called .  
petiole midrib lamina [lamina]
- (d) Flowers arranged in a group or cluster is called .  
spike inflorescence florets [inflorescence]
- (e) Flowers of the wheat plant are arranged in an inflorescence called .  
floret spike florets [spike]
- (f) The part of the animal body that contains the sensory organs is called .  
Head trunk limbs [head]
- (g) Which one of the following animals does not have a hard skeleton?  
rabbit squirrel jellyfish [jelly fish]
- (h) A hydrostatic skeleton is made up of a .  
solid liquid gas [liquid]
- (i) The body of an insect is covered by a hard, water-proof skin called .  
Chitin cuticle wax [cuticle]
- (j) The skeleton which forms the main axis of the body of a mammal is called .  
appendicular skeleton axial skeleton exoskeleton [axial skeleton]

## Additional Exercise

### MCQs

- (a) The breaking down of food into liquid form is called \_\_\_\_\_.  
 digestion                      respiration                      excretion                      [*digestion*]
- (b) The digestion of food in humans takes place inside a long tube called \_\_\_\_\_.  
 excretory canal                      alimentary canal                      respiratory canal                      [*alimentary canal*]
- (c) Enzymes in the gastric juice in the stomach help to digest \_\_\_\_\_.  
 proteins                      fats                      carbohydrates                      [*proteins*]
- (d) Bile is produced in the \_\_\_\_\_.  
 stomach                      intestines                      liver                      [*liver*]
- (e) Digested food is absorbed into the blood by finger like projections called \_\_\_\_\_.  
 tubes                      villi                      capillaries                      [*villi*]
- (f) Water from the undigested food is absorbed in the \_\_\_\_\_.  
 colon                      small intestine                      kidney                      [*colon*]
- (g) The process by which food is oxidized to release energy is called \_\_\_\_\_.  
 digestion                      excretion                      respiration                      [*respiration*]
- (h) Exchange of gases in the body takes place in the \_\_\_\_\_.  
 lungs                      kidneys                      stomach                      [*lungs*]
- (i) Excess animal fat in the diet leads to the formation of \_\_\_\_\_.  
 cholesterol                      proteins                      vitamins                      [*cholesterol*]
- (j) Many respiratory diseases like emphysema are caused by \_\_\_\_\_.  
 sleeping                      eating                      smoking                      [*smoking*]

