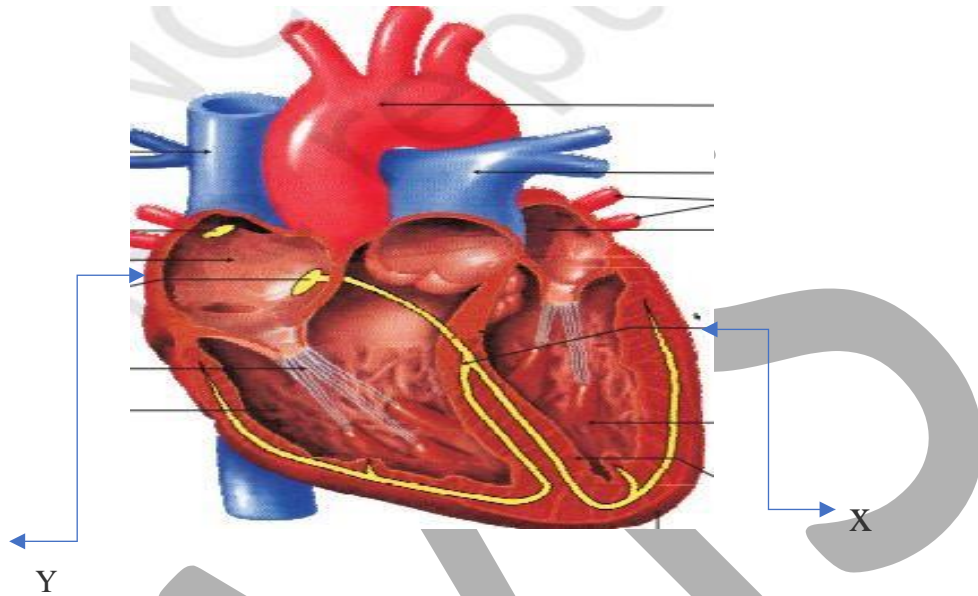


BIOLOGY
BODY FLUIDS AND CIRCULATION
WORK SHEET

CASE STUDY-

Observe the diagram and answer the questions that follows



1. The part marked Y is called the
- a) Sino-atrial node
 - b) Atrio-ventricular node
 - c) Atrio-ventricular bundle
 - d) Nodal fibres

2. **Assertion:** A specialised cardiac musculature called the nodal tissue is also distributed in the heart

Reason: The nodal musculature has the ability to generate action potentials without any external stimuli

- a. Both assertion and reason are true, and the reason is the correct explanation of the assertion.
- b. Both assertion and reason are true, but the reason is not the correct explanation of the assertion.
- c. Assertion is true but reason is false.
- d. Both assertion and reason are false

3-----is called the pacemaker of the heart

- a) SAN
- b) AVN
- c) AV
- d) Purkinje fibres

4. Identify the part marked Y

- a) SAN
- b) Purkinje fibres
- c) Bundle of His
- d) AVN

5. The opening between the right atrium and the right ventricle is guarded by a valve formed of three muscular flaps or cusps, the tricuspid valve-

True/ False

Assertion/Reason—Objective Type Question

1. **Assertion:** Ventricular systole increases the ventricular pressure

Reason: This results in the closure of tricuspid and bicuspid valves.

- a. Both assertion and reason are true, and the reason is the correct explanation of the assertion.
- b. Both assertion and reason are true, but the reason is not the correct explanation of the assertion.
- c. Assertion is true but reason is false.
- d. Both assertion and reason are false

2. **Assertion:** The fluid present in the lymphatic system is called the lymph

Reason: Fats are absorbed through lymph in the lacteals present in the intestinal villi.

- a. Both assertion and reason are true, and the reason is the correct explanation of the assertion.

- b. Both assertion and reason are true, but the reason is not the correct explanation of the assertion.
- c. Assertion is true but reason is false.
- d. Both assertion and reason are false

3. **Assertion:** 'O' blood can be donated to persons with any other blood group

Reason: There is no antigen in the RBCs

- a. Both assertion and reason are true, and the reason is the correct explanation of the assertion.
- b. Both assertion and reason are true, but the reason is not the correct explanation of the assertion.
- c. Assertion is true but reason is false.
- d. Both assertion and reason are false

Objective type of questions (MCQ + Fill ups+ Name the following)

1. The normal diastolic blood pressure in a normal healthy adult human is

- a) 80 mm Hg
- b) 60 mm Hg
- c) 90 mm Hg
- d) 110 mm Hg

2. _____ is a blood disorder where the haemoglobin is defective

- a) Heterochromia
- b) Alopecia
- c) Haemolysis
- d) Sickle cell anaemia

3. Which of the following two-word items mean the same thing?

- a) Blood cancer – Haemophilia
- b) Pacemaker – S A Node
- c) Osteoporosis – arthritis
- d) None of the above

4. An individual's blood is classified as _____ if an inherited protein is found on the surface of the blood cells.

- a) ANA-Positive
- b) Rh-Neutral
- c) Rh-Negative
- d) Rh-Positive

5. _____ is a condition where plaque builds up on the inside of arteries.

- a) Arthrocentesis
- b) Arthralgia
- c) Arthritis
- d) Atherosclerosis

6. _____ carries deoxygenated blood to the lungs from the right ventricle.

- a) Pulmonary artery
- b) Pulmonary vein
- c) Aorta
- d) None of the above

7. _____ forms clots when blood vessels get damaged.

- a) Platelets
- b) Cellulose
- c) Haemoglobin
- d) None of the above

8. _____ is a small branch of an artery that leads into a capillary.

- a) Venules
- b) Areolas
- c) Arteriole
- d) None of the above

9. Fill in the blanks:

- a) The serum is the plasma without _____ factors.
- b) Phagocytic cells are _____ and monocytes.
- c) Eosinophils are linked with _____ reactions.
- d) In clotting, _____ ions play an important role.
- e) In an ECG, one can determine the heartbeat rate by counting the number of _____.

Q.10. Which is the blood component that is straw coloured liquid and viscous?

Q.11. What is the vascular connection between the digestive tract and liver?

Q.12. Name the following disorders related to blood circulation

- a) Acute chest pain due to failure of oxygen supply to heart muscles
- b) Increased systolic pressure.

Q.13. Name the coronary artery disease that is caused as a result of narrowing of the lumen of arteries.

Short Answer Questions (SAI)

Q.14. What happens if the blood does not coagulate? Why are thrombocytes necessary for blood coagulation?

Q.15. What is the role of the time gap in the passage of action potential from the Sino-atrial node to the ventricle? What is the Sino-atrial node also called?

Q.16. What is the cardiac cycle?

Q.17. What is ECG? Identify its waves.

Q.18. State the differences between the following:

- Lymph and blood
- Bicuspid valve and tricuspid valve

Short Answer Questions (SA II)

Q.19. Answer the questions below:

- a) Which is the site where RBCs are formed?
- b) Name the part of the heart that initiates and maintains the rhythmic activity
- c) Why is the heart of crocodiles specific amongst reptilians?

Q.20. List out any three functions of lymph

Q.21. What are the symptoms of Hypertension and Anaemia.

Q.22. What are the two types of the circulatory system?

Long Answer Type of Questions

Q.24. Describe the Rh-incompatibility in humans.

Q.25. Explain the events in the cardiac cycle.

Q.26. Explain:

- a) Hypertension
- b) Coronary Artery Disease

ANSWERS

| | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|
| 1-a | 2-d | 3-b | 4-d | 5-d | 6-a | 7-a | 8-c |
|-----|-----|-----|-----|-----|-----|-----|-----|

9.a) Clotting.

b) Neutrophils.

c) Allergic.

d) Calcium.

e) QRS

A.10. Plasma

A.11. Hepatic portal system

A.12.a) Angina pectoris.

b) Hypertension – High blood pressure.

A.13. Atherosclerosis

A.14. *Blood coagulates or clots whenever there is an injury or trauma. Its absence can cause huge blood loss and can be fatal

* the platelets are released to produce the clotting factor known as thromboplastin. With its presence and calcium ions, pro-thrombokinase is activated, followed by a series of reaction leading to clotting

A.15* It allows ventricles to relax. Thus, the ventricular pressure falls, leading to the closing of semilunar valves, and restricts the backflow of blood into ventricles.

*Pacemaker

A.16. *The cardiac cycle is associated with the complete heartbeat from its production to the commencement of the next beat.

*It comprises of diastole, the systole, and the intervening pause.

A.17*Electrocardiogram or ECG is a test used to measures the electrical activity of the heartbeat.

*P wave, ORS wave and T wave

A.18.

Blood and Lymph

| Blood | Lymph |
|---|--|
| It is a connective tissue having leucocytes, erythrocytes, and platelets in plasma, a fluid, Flows in the blood vessels | It is a connective tissue having WBC but not RBC in the plasma. Flows in the lymphatic system. |

Tricuspid and bicuspid valve

| Tricuspid valve | Bicuspid valve |
|--|---|
| It separates right atria from the right ventricle. It has 3 flaps and is also known as the right atrioventricular valve. | It separates left atria from the left ventricle. It has 2 flaps and is also known as mitral valve |

A.19. a) Bone marrow b) Sinoatrial node c) Reptiles are characterized by having a 3 chambered heart except for the crocodile which has a 4 chambered heart, because of the partial division of ventricle through a septum.

a) Lymphatic System. b) Pulmonary vein. c) Lymphocytes.

A.20 a) Lymphatic System– It transports white blood cells to and from the lymph nodes into the bones.

b) Pulmonary vein– It transfer oxygenated blood from the lungs to the heart.

c) Lymphocytes-They acts as a defence system of the body by defending against the invading foreign substances.

A.24. *Rh antigen is seen on the RBC surface of majority humans, these are called Rh-positive individuals and when the antigen is absent they are Rh-negative individuals.

*However, in these individuals, a problem emerges during pregnancy or transfusion of blood.

The first blood transfusion from Rh-positive blood to the Rh-negative individual leads to no harm as the Rh-negative person acquires antibodies or Rh factors in their blood.

During the second transfusion of blood, from Rh-positive blood to the Rh-negative individual, the antibodies already formed attack to destruct the RBC of the donor.

In pregnancy, if the father's blood is Rh-positive and the mother's blood is Rh-negative, If the blood of the foetus will be Rh-positive, which leads to serious issues. Explain erythroblastosis fetalis.