

**GRADE 10 HEART & SKELETON PRACTICAL**  
**MARKS: 50**  
**TIME: 2 PERIODS**

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**QUESTION 1: TRANSPORT SYSTEMS IN ANIMALS**

**Materials:**

1. One pig heart.
2. Plastic gloves
3. A sharp scalpel or blade
4. Scissors
5. Cutting board
6. Newspaper

**Safety tips:** Be careful when working with the scissors, scalpel and blade to prevent injury to yourself or the person next to you. Wash all the dissection apparatus, working surfaces and your hands with soap and water when the dissection is complete.

**EXTERNAL STRUCTURE**

1.1 A large number of branched blood vessels is visible over the surface of the heart.

(a) What are they called? (1)

\_\_\_\_\_

(b) What is the function of these blood vessels? (2)

\_\_\_\_\_

\_\_\_\_\_

***Place the heart on your cutting board with its point directed downwards. Ensure that the groove is angled from top right to bottom left. CUT your heart LONGITUDINALLY. Cut as slowly and centrally as possible. Look at the structures as you are cutting. Do not completely cut the heart in two. Only cut it deep enough so that you can flip the heart open, but the blood vessels are not damaged.***

**INTERNAL STRUCTURE**

1.2. How do the atria and ventricles differ in size and shape? Explain why. (4)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

1.3. Look at the large blood vessels attached to the heart. Identify which of them are arteries and which are veins.

(a) How did you identify the arteries? Give **TWO** visible structural characteristics. (2)

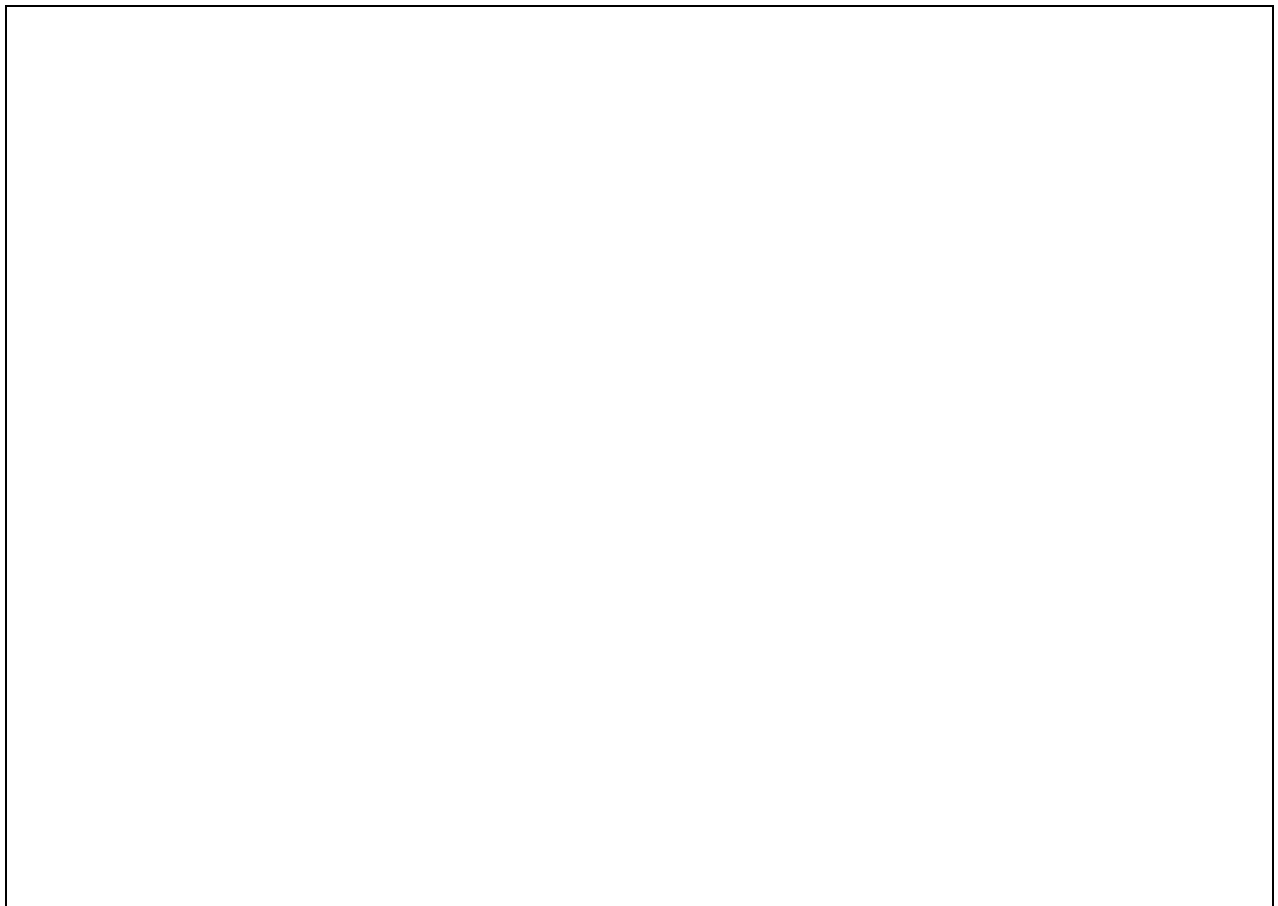
\_\_\_\_\_

1.4. Identify the atrio-ventricular valves.

(a) Describe their colour: \_\_\_\_\_ (1)

(b) What attaches the valves to the heart walls? \_\_\_\_\_ (1)

1.5. Make a neat, scientific pencil sketch of the **right side** of the heart dissection. It must include a part of an *atrium* and *ventricle* and *three other known parts*.



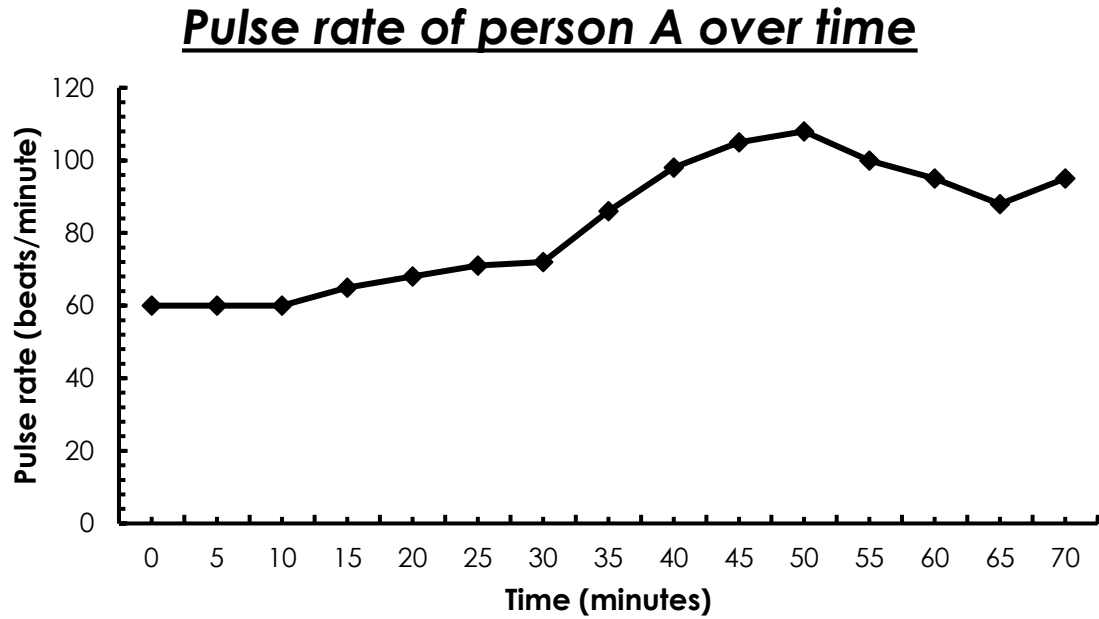
(7)

1.6. Your teacher will call you to the front to identify any **THREE** structures on the dissected heart. Wait for you turn.

3 out of 3	2 out of 3	1 out of 3	0 out of 3

(3)

1.7. Study the graph on pulse rate given below and answer the questions that follow:



Use the graph to determine between **which times** person A was:

(a) running: \_\_\_\_\_

(b) sleeping: \_\_\_\_\_

(c) walking: \_\_\_\_\_

(d) frightened by a loud noise: \_\_\_\_\_

(4)

**TOTAL QUESTION 1: [25]**

## **QUESTION 2: SUPPORT SYSTEMS IN ANIMALS**

**{Give the scientific name for the bone in each case}**

2.1. The X-rays below show broken bones in the human body. Study the X-rays and answer the questions that follow.



(a) Give the name of the broken bone:

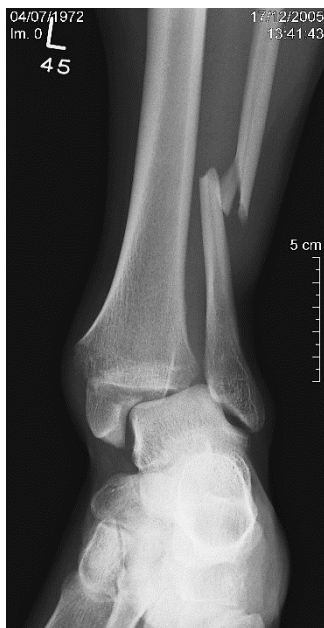
\_\_\_\_\_

(b) Give two possible causes for this bone fracture:

\_\_\_\_\_

\_\_\_\_\_

**(3)**



(a) Give the name of this broken bone:

\_\_\_\_\_

(b) Where in the human body is this bone located?

\_\_\_\_\_

**(2)**



(a) Give the name of the broken bone:

\_\_\_\_\_

\_\_\_\_\_

(b) Give one possible cause for this bone fracture:

\_\_\_\_\_

**(2)**

- 2.2. Five vertebrae marked A to E are laid out on the table. Study the vertebrae and complete the table below:

Bone	Identify the vertebrate	Visible, distinguishable reason
A		
B		
C		
D		

(8)

- 2.3. Five bones are laid on the table. Identify each bone:

1 : \_\_\_\_\_

2 : \_\_\_\_\_

3 : \_\_\_\_\_

4 : \_\_\_\_\_

5 : \_\_\_\_\_

(5)

- 2.4. Two stickers are visible on bone number 1.

(a) Which **colour** sticker represents the head of the bone? \_\_\_\_\_ (1)

(b) With which bone does the head of bone 1 articulate? \_\_\_\_\_ (1)

(c) Which type of joint is created by the head of bone 1 and the bone you mentioned in **(b)** above? \_\_\_\_\_ (1)

(d) Give the number of the bone that articulates with the clavicle. \_\_\_\_\_ (1)

(e) *Underline the correct word in brackets:*

The bone numbered 5 forms part of the (AXIAL SKELETON / APPENDICULAR SKELETON).

(1)

(5)

**TOTAL QUESTION 2: [25]**

**SUM TOTAL: [50]**