



LIFE SCIENCES Grade 10

TOPIC TEST: Transport system in Mammals

MARKS: 50

TIME: 60 minutes

SECTION A

Question 1

Various options are provided as possible answers to the following questions. Choose the correct answer and write only the letter (A to D) next to the question number (1.1 to 1.4) in your ANSWER BOOK, for example 1.5 D.

1.1 Which ONE of the following blood vessels supplies the heart tissue with oxygen and glucose?

- A Coronary vein
- B Pulmonary artery
- C Coronary artery
- D Aorta

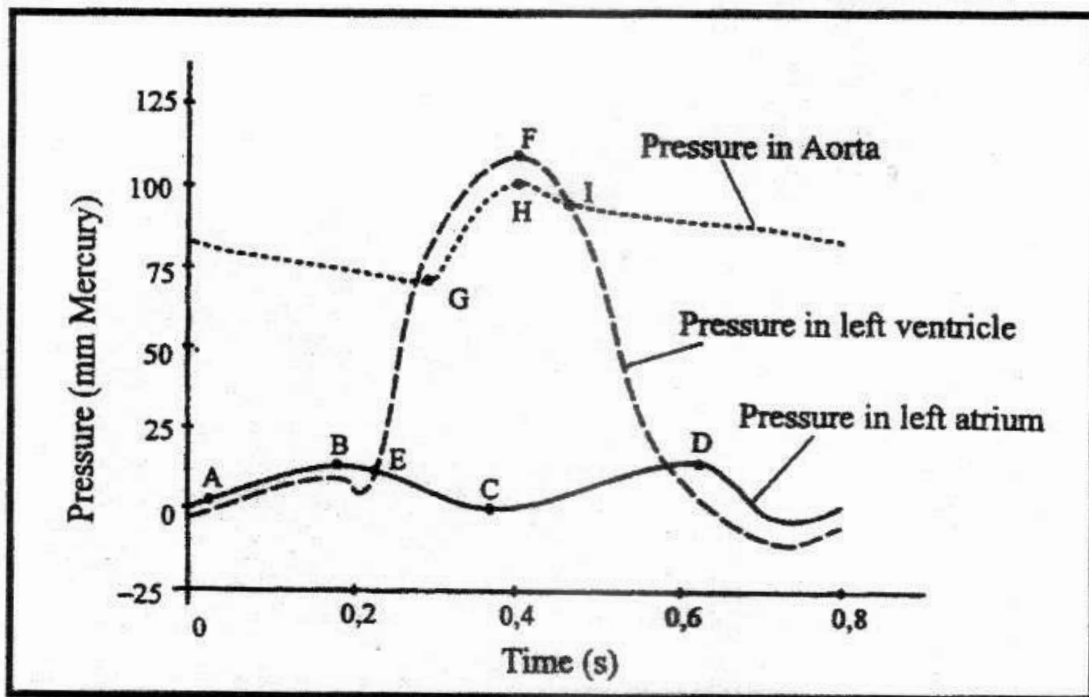
1.2 An *artery* is different from a *vein* in that it ...

- A has an endothelial layer.
- B always carries oxygenated blood.
- C does not contain smooth muscles.
- D has a thicker smooth muscle layer.

1.3 As the level of exercise in a person increases we can expect that ...

- A the arteries supplying the skeletal muscles will constrict.
- B the blood flow to the muscles will decrease.
- C the arteries supplying the skeletal muscles will dilate.
- D the body temperature will decrease.

1.4 Study the graph below showing changes in pressure during a heartbeat.



Using information from the graph, one may conclude that the atrial systole occurs between points ...

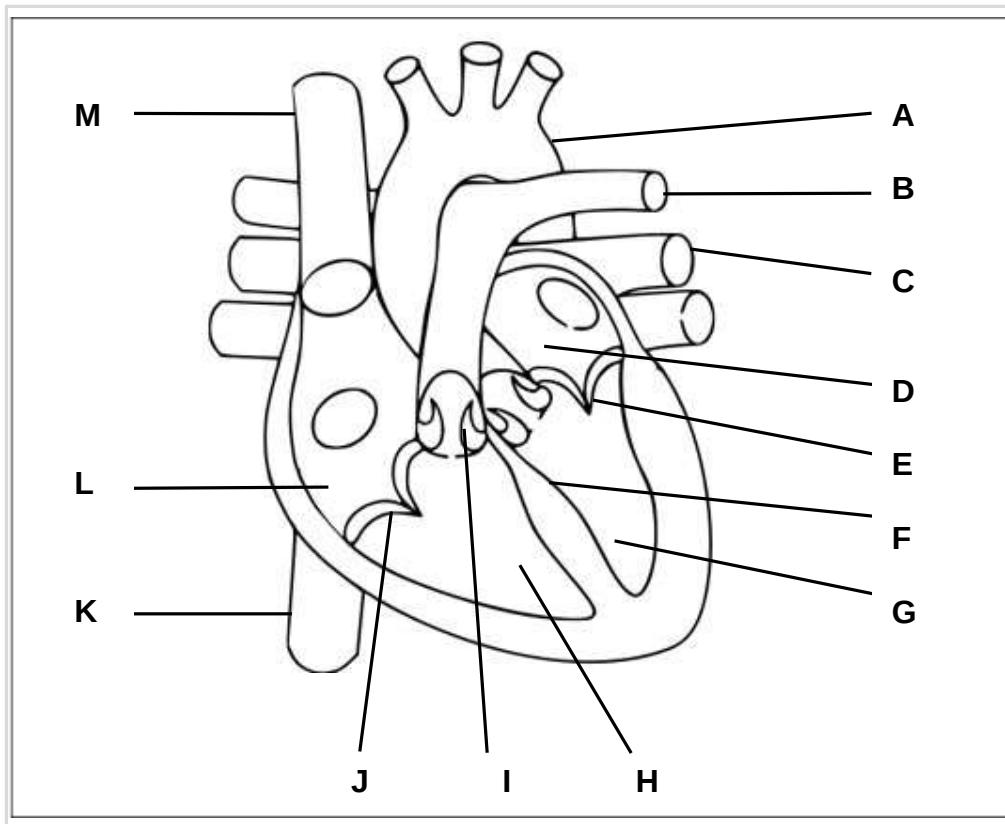
- A E and C.
- B A and B.
- C E and F.
- D G and H.

(4 x 2) 8

TOTAL SECTION A: 8

Question 2

2.1 Study the diagram below showing a section through the heart.



2.1.1 Identify part:

- (a) **A**
- (b) **E**
- (c) **G**
- (d) **I**
- (e) **K**

(5)

2.1.2 Write down the LETTER only of the part that:

- (a) Prevents backflow of blood from the right ventricle into the right atrium
- (b) Transports blood to the lungs
- (c) Receives blood from the superior vena cava
- (d) Transports oxygenated blood into the heart

(4)

2.1.3 Explain ONE consequence of a hole developing in part **F**.

(2)

2.1.4 Explain why the wall of part **G** is thicker than that of part **H**.

(2)

(13)

2.2 The table below shows the resting pulse rate of different mammals and the number of beats in the average life-time of each organism.

Mammal	Resting pulse rate (beats per minute)	Number of beats in average life-time (million)
Elephant	25	591
Humans	72	2700
Dog	100	525
Rat	350	560

2.2.1 Draw a bar graph showing the resting pulse rate of the different mammals. (6)

2.2.2 Use the information in the table to calculate the average life-span (in years) of an elephant. Show ALL working. (3)

(9)

Question 3

Matthew is an enthusiastic soccer player. He notices that by the end of the game his heart beats very fast.

3.1 Describe the events of the cardiac cycle. (12)

3.2 Describe why and how the speed of the cardiac cycle increases as he plays soccer (8)

(20)

SECTION B: 42

GRAND TOTAL: 50