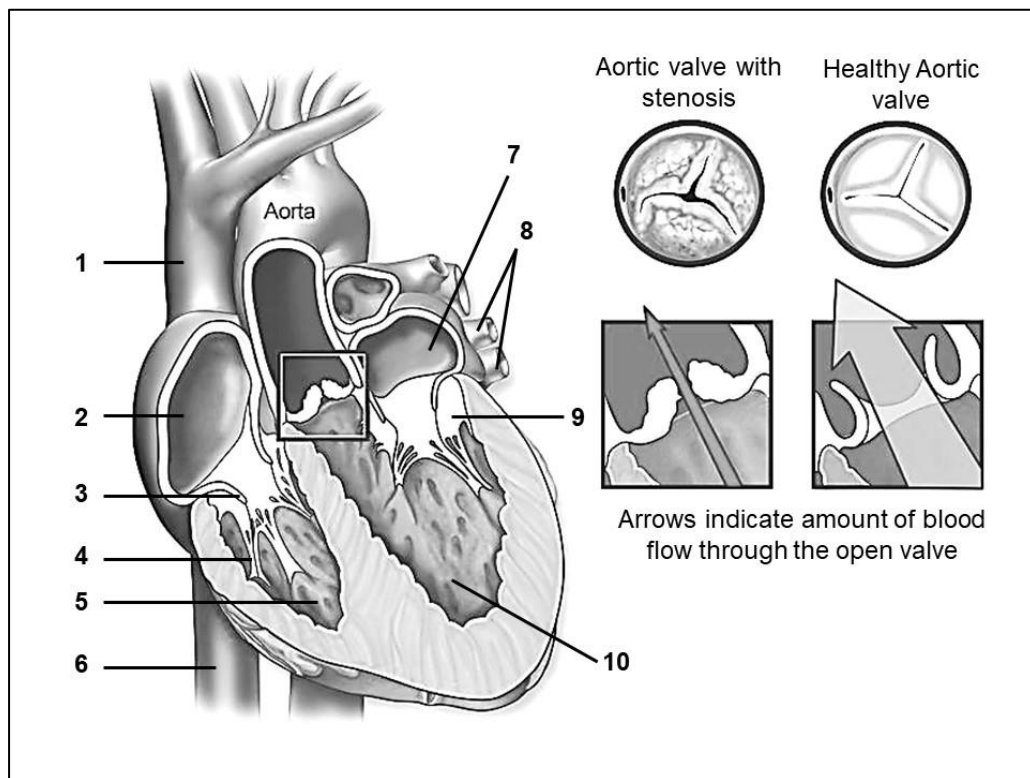


### QUESTION 3

- 3.1 Aortic stenosis is one of the most common and serious valve disease problems. Aortic stenosis is a narrowing of the aortic valve opening. This condition more commonly develops during aging as calcium or scarring damages the valve and restricts the amount of blood flowing through. Symptoms of aortic stenosis may include chest pain, rapid heartbeat, trouble breathing, feeling dizzy and difficulty walking short distances.

In addition to these symptoms the wall of the left ventricle also may show abnormal muscular thickening. The thickened wall takes up more space inside the lower heart chamber that allows less room for an adequate amount of blood to be supplied to the body.

Study the diagrams below of the heart and a diseased versus healthy aortic valve and answer the questions that follow.



- 3.1.1 Give the **NAME** and **NUMBER** of at least **ONE** vein shown in the diagram above that transports oxygenated blood. (2)
- 3.1.2 What type of blood is found in the part labelled **6** and where does the blood come from? (2)
- 3.1.3 Identify labels **3** and **4** respectively. (2)

- 3.1.4 What do you notice about the blood flow through a healthy aortic valve compared to an aortic valve with stenosis? (2)
- 3.1.5 Explain why aortic stenosis would lead to symptoms like chest pains, difficulty breathing, feeling dizzy and difficulty walking short distances. (3)
- 3.1.6 Explain why the left ventricle wall will thicken abnormally in response to this disease. (2)
- (13)**

## MEMO

- 3.1.1. 8✓ – pulmonary artery✓ (2)
- 3.1.2. Oxygen poor✓ blood  
from the body cells/tissues/lower half of the body✓ (2)
- 3.1.3. 3 – Tricuspid valve✓  
4 – hart tendons /chordae tendineae ✓ (2)
- 3.1.4. More blood flows through the healthy valve✓ than the valve with stenosis✓  
OR  
Less blood flows through the valve with stenosis✓ than the healthy valve✓ (2)
- 3.1.5. Less blood will exit the heart✓  
less oxygen will reach the body tissues/cells✓  
less energy is produced during respiration ✓ (3)
- 3.1.6. The left ventricle must be able to produce more force/pressure ✓  
to push blood out of the heart through a narrower opening/valve ✓ (2)
- (13)**