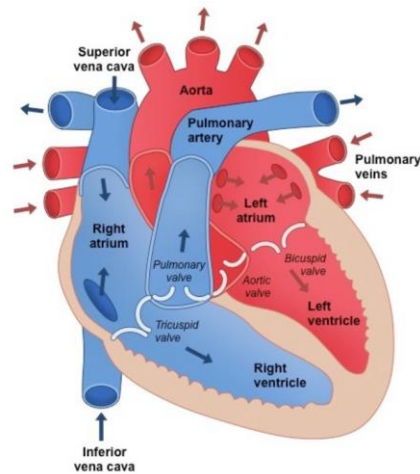


Transport in Humans 2

1. Below is a picture of the human heart.

[10]



a) Sketch a simple diagram of the human heart.

Label the following structures:

- Right atrium
- Right ventricle
- Superior and inferior vena cavae
- Pulmonary artery
- Tricuspid valve
- Pulmonary valve
- Median septum
- Left atrium
- Left ventricle
- Pulmonary vein(s)
- Aorta
- Bicuspid/mitral valve
- Aortic valve

b) Using arrows, state the flow of blood through the heart's chambers in the correct order, starting from the **vena cava** and ending with the **aorta**. In your answer, include the names of the valves that blood must pass through.

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2. What is the function of the vena cava? [1]

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3. What is the function of the right atrium? [1]

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4. What is the function of the right ventricle? [1]

.....

5. What is the function of the tricuspid valve? [1]

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6. What is the function of the pulmonary artery? [1]

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7. What is the function of the pulmonary valve? [1]

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8. What is the function of the left atrium? [1]

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9. What is the function of the left ventricle? [1]

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10. What is the function of the bicuspid/mitral valve? [1]

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11. What is the function of the aorta? [1]

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12. What is the function of the aortic valve? [1]

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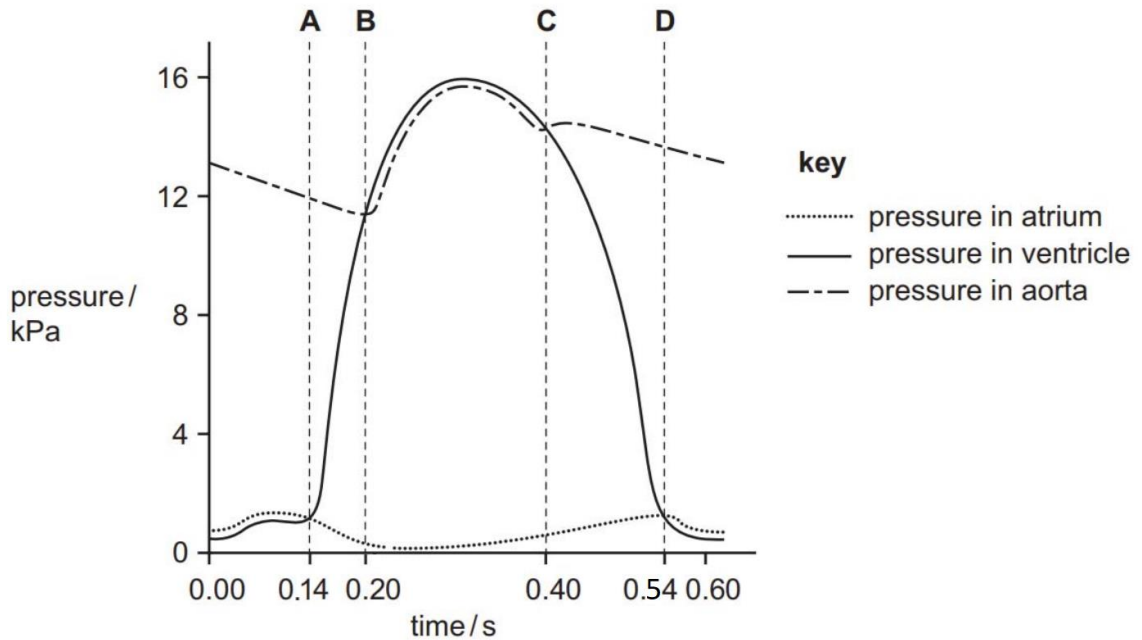
13. What are the semilunar valves? [1]

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14. What are the atrioventricular valves? [1]

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16. The diagram below shows the cardiac cycle in a healthy person. Certain key points in the cycle are marked **A**, **B**, **C**, and **D**. Using the information from the graph, answer the questions below.



a) How are the first and second heart sounds generated? At which points in the graph are they generated?

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b) What are the meanings of “systole” and “diastole”?

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c) At which point do the atrioventricular valves close?

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d) At which point do the semilunar valves close?

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e) At which point do the atrioventricular valves open?

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f) At which point do the semilunar valves open?

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g) What period in the graph represents atrial systole?

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h) What period in the graph represents ventricular systole?

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i) What period in the graph represents atrial diastole?

.....

j) What period in the graph represents ventricular diastole?

.....

k) What period in the graph represents diastole?

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l) What fundamental difference would there be between the cardiac cycle graph for the left side of the heart and for the right side of the heart?

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17. Why is the blood pressure generated by the left ventricle much higher than that by the right ventricle? [1]

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18. Suggest the importance of the lower blood pressure in the pulmonary artery compared to the one for the aorta. [2]

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