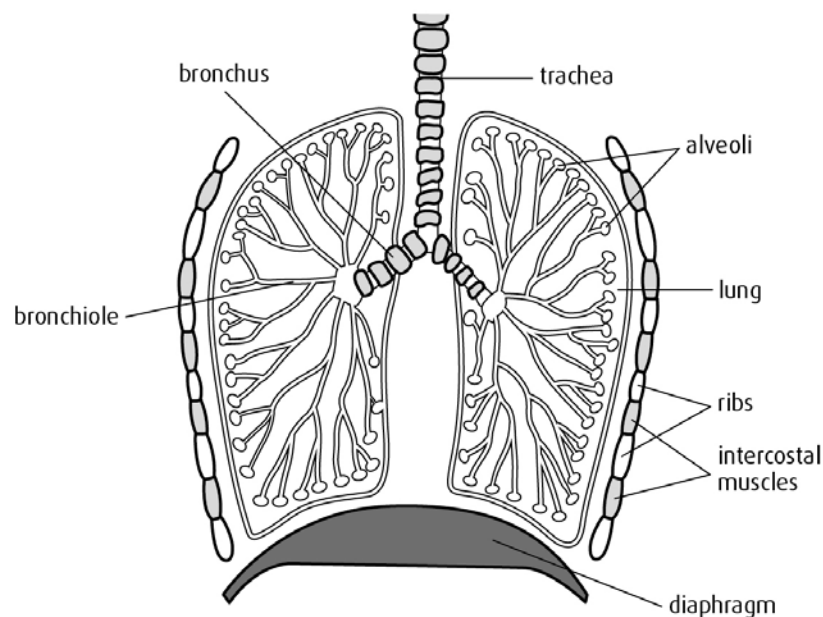


Exemplar exam question – Chapter 6, *Human health and physiology I***Structured questions**

Structured questions in this style appear on Paper 2. These questions use the same command words as essay questions.

Exemplar question

- a** Draw and label a simple diagram of the gas exchange system in humans. (3)
- b** Outline the differences between ventilation and gas exchange. (1)
- c** Explain why a ventilation system is needed. (3)

Student response**a**

- b** Ventilation is movement of the rib cage and diaphragm to draw air in and out of the lungs whereas gas exchange is oxygen passing into the blood capillaries from the alveoli and carbon dioxide passing from the blood back into the alveoli.
- c** Ventilation is needed because oxygen passes into the blood from the alveoli by diffusion and carbon dioxide passes back from the blood by diffusion as well. Diffusion is passive and gases diffuse from an area of high concentration to an area of low concentration. Ventilation refreshes the air in the alveoli so that the concentration of oxygen stays high and is always higher than that in the blood. This means oxygen can diffuse. As air is breathed out carbon dioxide goes with it and this means the level in the alveoli is kept low so that carbon dioxide will diffuse into alveoli from the blood.

Commentary

This is a good answer.

- a** The diagram is clear and simple and includes all the important structures. There are only 3 marks for this part of the question and these will be awarded for a diagram that shows the structures in the correct proportions and has labels correctly positioned. Trachea, lungs, bronchi, bronchioles and alveoli must be labelled.
- b** Only one mark is given for the differences between ventilation and gas exchange and the student has wisely just explained each term clearly, using the word 'whereas' to emphasize the differences.
- c** The third part of the question asks for an explanation so more detail is needed. The answer is a little muddled but three main points are made: (i) gases pass by diffusion, (ii) diffusion requires a concentration gradient, (iii) ventilation maintains this concentration gradient.

Total marks awarded: 6 out of 7