

90178



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

For Supervisor's use only

Level 1 Human Biology, 2009

90178 Describe functioning of human circulatory, respiratory and excretory systems

Credits: Six

9.30 am Friday 27 November 2009

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should answer ALL the questions in this booklet.

If you need more space for any answer, use the page(s) provided at the back of this booklet and clearly number the question.

Check that this booklet has pages 2–9 in the correct order and that none of these pages is blank.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

<i>For Assessor's use only</i>	Achievement Criteria		
Achievement	Achievement with Merit	Achievement with Excellence	
Describe functioning of human circulatory, respiratory and excretory systems. <input type="checkbox"/>	Describe functioning of human circulatory, respiratory and excretory systems. <input type="checkbox"/>	Describe functioning of human circulatory, respiratory and excretory systems. <input type="checkbox"/>	
	Explain functioning of human circulatory or respiratory or excretory systems. <input type="checkbox"/>	Discuss functioning of human circulatory or respiratory or excretory systems. <input type="checkbox"/>	
Overall Level of Performance (all criteria within a column are met)			<input type="checkbox"/>

You are advised to spend 70 minutes answering the questions in this booklet.

QUESTION ONE

You may use labelled diagrams to support your answers to this question.

- (a) Describe the structure of the heart.

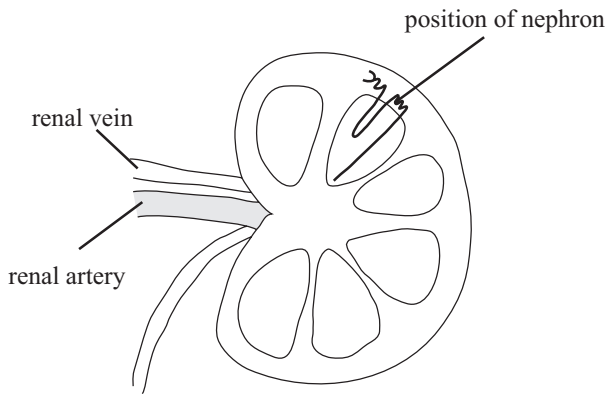
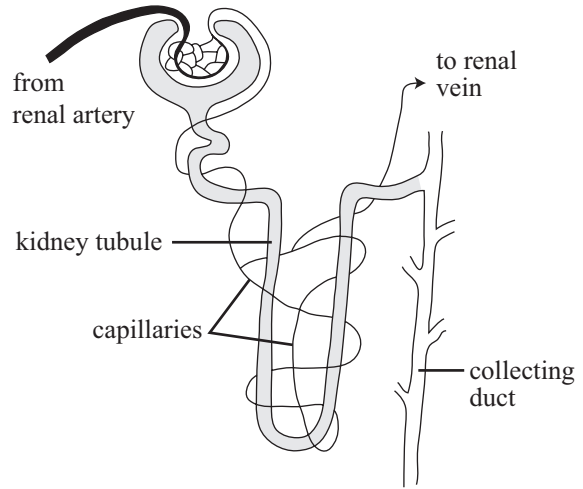
- (b) Explain how TWO structural features of an artery help blood circulate around the body.

(c) Explain how valves help to maintain directional blood flow.

- (ii) Explain how TWO structural features of alveoli help gas exchange to occur between the blood capillaries and the alveoli.

You may use labelled diagrams to support your answer.

- (iii) Explain how gas exchange is maintained between the blood capillaries and the alveoli.

QUESTION THREE**The general internal structure of a kidney****A simplified nephron**

Refer to the diagrams above to answer the following questions.

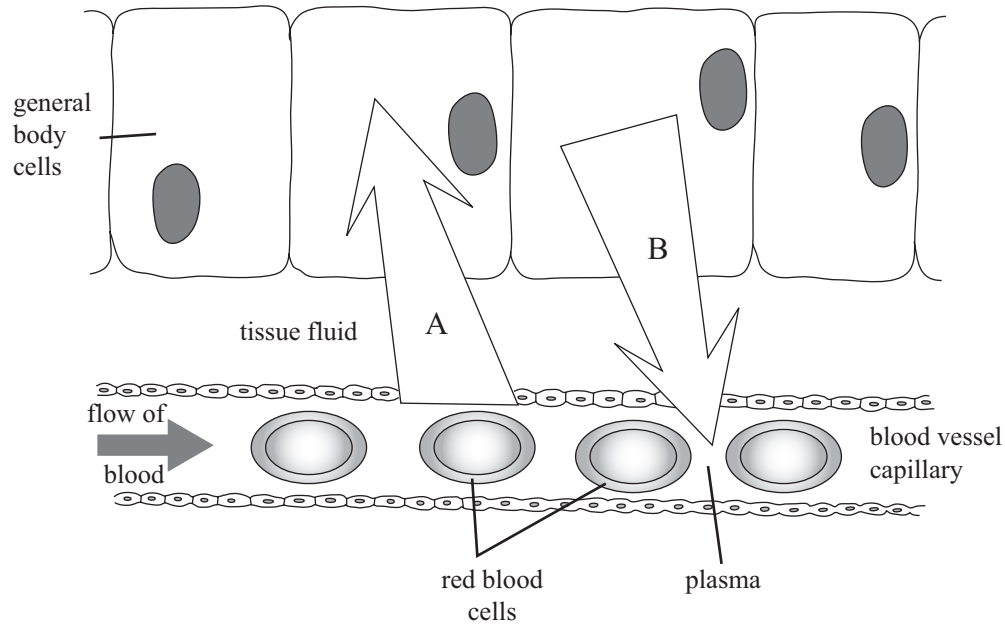
- (a) Describe the function of the renal artery and renal vein.

- (b) Explain, with reasons, what happens between the glomerulus and the Bowman's capsule.

(c) Explain, with reasons, what happens between the kidney tubule and capillaries.

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QUESTION FOUR



The diagram above shows a capillary beside some general body cells. The arrows indicate the movement of substances between the blood and the body cells.

- (a) Name ONE substance that moves in the direction of arrow A.
Name another substance that moves in the direction of arrow B and **explain how** these substances move between the body cells and blood.

- (b) Explain why a named waste product in arrow B was produced by the body cells, **and** why it needs to move from the body cells into the blood.

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