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NZQA

NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

For Supervisor's use only

Level 1 Human Biology, 2010

90178 Describe functioning of human circulatory, respiratory and excretory systems

Credits: Six
9.30 am Friday 26 November 2010

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.

For Assessor's use only	**Achievement Criteria**	
Achievement	**Achievement with Merit**	**Achievement with Excellence**
Describe functioning of human circulatory, respiratory and excretory systems. ☐	Describe functioning of human circulatory, respiratory and excretory systems. ☐	Describe functioning of human circulatory, respiratory and excretory systems. ☐
	Explain functioning of human circulatory or respiratory or excretory systems. ☐	Discuss functioning of human circulatory or respiratory or excretory systems. ☐
Overall Level of Performance (all criteria within a column are met) ☐		

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

Assessor's use only

QUESTION ONE

(a) Draw a clear, labelled diagram to show the structure of an artery as seen in cross section.

(b) **Explain** why an artery and vein have different blood pressures.

In your answer consider the structure and function of each type of blood vessel.

(c) **Discuss** TWO long term effects on the **heart** when a person has eaten a fatty diet for many years.

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QUESTION TWO

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Human lungs contain approximately 300 million alveoli. Each alveolus:

- is a hollow, moist sac
- has walls that are one cell thick
- has walls that are folded, not smooth
- is surrounded by a network of capillaries.

(a) **Describe** the importance of the alveoli walls being moist.

(b) **Explain** the importance of the alveoli walls being only one cell thick.

(c) **Explain** why the alveoli walls are folded, not smooth.

(d) **Discuss** TWO features of the capillary network that assist gas exchange in the lungs.

Assessor's use only

QUESTION THREE

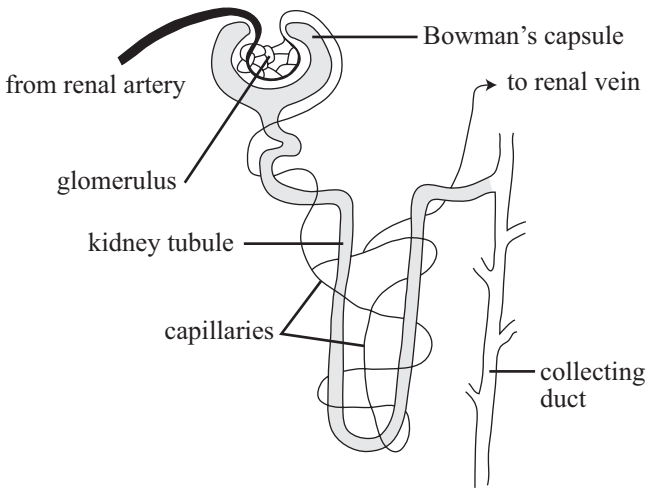
Assessor's use only

(a) **Define** the term excretion.

(b) A boy drinks a large amount of water in a day.

Explain why the boy produces a large volume of very pale yellow urine later in the day.

(c) A kidney has many nephrons.



Discuss how **and** why a nephron filters blood.

Assessor's use only

Question Four is on the following page.

QUESTION FOUR

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Discuss the benefits of a regular exercise programme to **both** the circulatory **and** respiratory systems.

In your answer:

- Explain ONE benefit to the lungs.
- Explain ONE benefit to both the heart **and** the circulatory system.
- Elaborate by showing links between the functioning of both body systems, as a result of a regular excercise programme.

Extra paper for continuation of answers if required.
Clearly number the question.

Assessor's use only

Question number	

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