Homeostasis in mammals

Question Paper 2

Level	International A Level
Subject	Biology
Exam Board	CIE
Topic	Homeostasis
Sub Topic	Homeostasis in mammals
Booklet	Theory
Paper Type	Question Paper 2

Time Allowed : **55 minutes**

Score : **/ 46**

Percentage : **/100**

Grade Boundaries:

A*	A	B	C	D	E	U
>85%	'77.5%	70%	62.5%	57.5%	45%	<45%

1 Describe the role of insulin in the regulation of blood glucose concentration.

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.....[4]

[Total: 4]

2 **(a)** Describe how a nerve impulse crosses a cholinergic synapse. [9]

(b) Explain the roles of synapses in the nervous system. [6]

[Total: 15]

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3 Describe the role of glucagon in regulating blood glucose. [6]

[Total: 6]

4 Explain the principles of homeostasis in humans. [6]

[Total: 6]

5 **(a)** Table 7.1 shows the effect of several events on the blood concentration of glucose, insulin and glucagon in a healthy person.

Complete the table using the words **increase**, **decrease** or **no effect**.

The first row has been done for you.

Table 7.1

	initial effect of event on blood concentration of		
event	**glucose**	**insulin**	**glucagon**
meal containing sucrose	increase	increase	decrease
meal containing only protein			
fasting			
exercising			
meal containing starch			

[4]

(b) The concentration of glucose in the blood is controlled by the hormones insulin and glucagon.

Describe the part played by **glucagon** in the control of glucose in the blood.

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[Total: 7]

6 Urea is the main nitrogenous waste product in humans. It is made in the liver and excreted by the kidneys in urine.

(a) Define the term *excretion*.

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..... [2]

(b) The kidneys regulate the water potential of body fluids. This is known as osmoregulation and involves a negative feedback system.

Outline the role of negative feedback in osmoregulation.

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(c) Investigations have shown that when a person remains in a cold environment for more than 15 minutes there is increased urine production. This is called cold diuresis.

Suggest how exposure to cold can lead to cold diuresis.

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..... [2]

[Total: 8]