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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2018/2019**

COURSE NAME : HUMAN PHYSIOLOGY

COURSE CODE : BEU 20103

PROGRAMME : BEJ

EXAMINATION DATE : DECEMBER 2018/ JANUARY 2019

DURATION : 3 HOURS

**INSTRUCTION : 1. ANSWER ALL QUESTIONS
2. PLEASE WRITE ALL ANSWERS IN
THE QUESTION BOOKLET**

THIS QUESTION PAPER CONSISTS OF EIGHT (8) PAGES

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TERBUKA

Q1 Homeostasis is the maintenance of a stable internal environment. If the body fails to maintain homeostasis, then normal function is disrupted and a disease may result.

(a) Complete the process map of homeostasis as shown in **Figure Q1(a)**.

(6 marks)

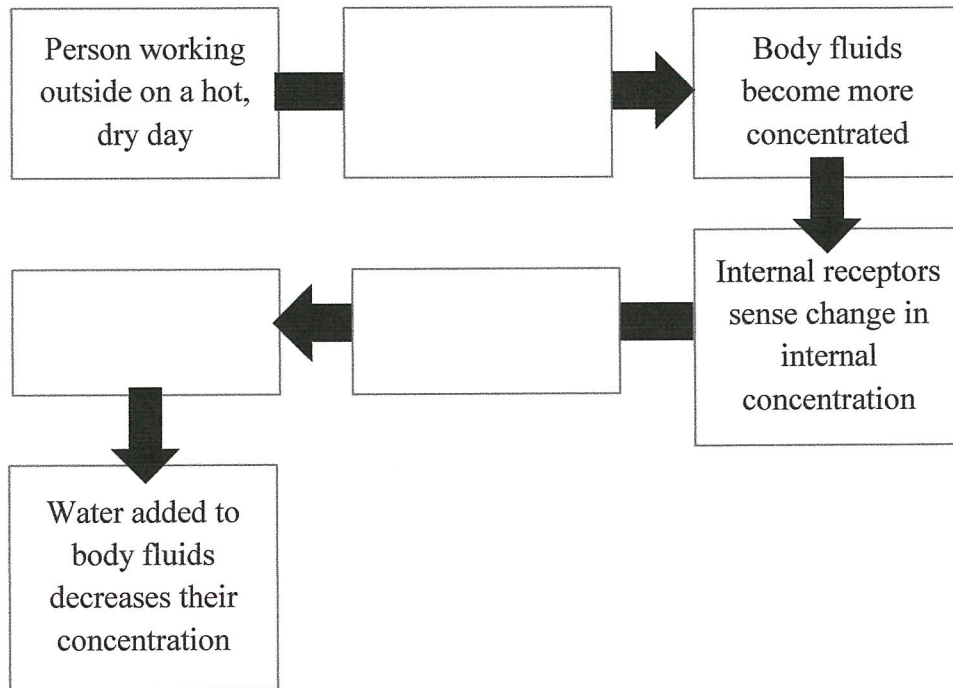


Figure Q1(a)

(b) Give **FOUR (4)** factors that can regulate the homeostasis.

(4 marks)

(c) Categorise whether the following characteristics in Q1(c) (i) – (viii) match with either epidermis or dermis.

- (i) _____ is the inner layer of skin
- (ii) _____ has layers of epithelial cells that are dead and flattened
- (iii) _____ has no direct blood supply
- (iv) _____ contains sensory nerve endings
- (v) _____ contains keratinocytes
- (vi) _____ contains melanocytes
- (vii) _____ contains rapidly dividing cells
- (viii) _____ is mostly connective tissue

(8 marks)

Q2 Muscles provide an excellent system for explaining the relationship of structure-function at all levels especially from actin, myosin, sliding filaments in the cell to muscles pulling on bones and joints.

(a) Identify **THREE (3)** pairs of antagonistic muscle groups in the body.

(6 marks)

(b) Differentiate between the structure and function of cardiac muscle, smooth muscle, and skeletal muscle.

(6 marks)

- (c) Illustrate the arrangement of thick and thin filaments in a smooth muscle cell during relaxing and contracting conditions.

(6 marks)

Q3 A cardiovascular system is a series of the blood vessels filled with blood and connected to the heart. The primary function of cardiovascular system is to transport materials to and from all parts of the body.

- (a) Left ventricular failure may be accompanied by shortness of breath and increased venous pressure. Analyse the effect on circulatory system.

(6 marks)

- (b) Defend the statements given.
- (i) Valves in the veins from the brain to the heart is not required. (2 marks)
 - (ii) Pulse in carotid artery is slightly ahead with the pulse in left wrist. (2 marks)
 - (iii) People with high blood pressure is at greater risk for having hemorrhagic stroke. (2 marks)
 - (iv) Reducing salt intake could control hypertension. (2 marks)
 - (v) Wall of aorta and arteries are both stiff and springy. (2 marks)

- (c) Complete the **Table Q3(c)** associate with the structure of blood flow in heart. (5 marks)

Table Q3(c) Structure of blood flow

	Receive blood from	Send blood to
Right atrium		Right ventricle
Right ventricle	Right atrium	
Left atrium		
Left ventricle	Left atrium	

- (d) Predict the abnormality of electrocardiogram (ECG) if the ventricle of the heart is damaged.

(6 marks)

Q4 The respiratory system consists of structures involved in ventilation and gas exchange.

- (a) List **FOUR (4)** functions of the respiratory system.

(4 marks)

- (b) Predict **TWO (2)** physical changes that could result when less oxygen reaches the arterial blood.

(4 marks)

(c) Discuss the path of pulmonary circulation.

(4 marks)

(d) Name the components of the upper respiratory tract and those of the lower respiratory tract.

(8 marks)

Q5 (a) Point out the system name, organ involves, and functions of organ system in human body as shown in **Table Q5**.

(11 marks)

Table Q5 Organ Systems of the Human Body and their functions

System name	Organ involves	System functions
Circulatory		Transport of materials between all cells of the body
Digestive		
	Skin	Protection from external environment
	Skeletal muscle, bone	
Nervous		
Reproductive		Perpetuation of the species
	Lungs, airways	

(b) Neuron is the functional unit of the nervous system. Neurons are uniquely shaped cells with long processes that extend outward from the nerve cell body. Match each of the following term with the appropriate neuron types of interneuron, motor neuron, and sensory neuron.

(6 marks)

- (i) Afferent neuron : _____
- (ii) Efferent neuron : _____
- (iii) Integrating center : _____
- (iv) Input signal : _____
- (v) Output signal : _____
- (vi) Somatic neuron : _____

-END OF QUESTIONS-