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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2017/2018**

COURSE NAME : HUMAN PHYSIOLOGY
COURSE CODE : BEU 20103
PROGRAMME : BEJ
EXAMINATION DATE : DECEMBER 2017/JANUARY 2018
DURATION : 2 HOURS 30 MINUTES
INSTRUCTION : ANSWER ALL QUESTIONS
PLEASE WRITE ALL THE ANSWERS IN
THE QUESTIONS BOOKLET

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THIS QUESTION PAPER CONSISTS OF NINE (9) PAGES

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Q1 (a) Physiology is the study of the normal functioning of a living organism and its component parts, including all its chemical and physical process.

(i) Propose the level of organization in human body

(4 marks)

(ii) State 10 organ systems in human body

(10 marks)

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- (b) Name **TWO (2)** organs and **TWO (2)** body structures that connect directly with the external environment.

(4 marks)

- (c) Organize the following parts of a reflex in the correct order for a physiological response loop: input signal, integrating center, output signal, response, sensor, stimulus, target

(2 marks)

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- (d) Categorize whether the following characteristics in **Q1(d) (i) – (viii)** apply on the 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)

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- Q2** The central nervous system (CNS) is composed of neurons and supportive glial cells. Sensory and efferent neurons link interneurons to peripheral receptors and effectors.
- (a) The tissues of the CNS are divided into gray matter and white matter. Compare the gray matter and white matter, both anatomically and functionally. (4 marks)

- (b) Name **TWO (2)** types of receptors that are responsible in nervous system. (2 marks)

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- (c) Discover the alteration of the two receptors mentioned in Q2(b), in conducting the action potential to Central Nervous System (CNS).

(10 marks)

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- (d) List down **SIX (6)** types of cells found in the retina, and briefly describe their functions.
- (8 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 the transport of materials to and from all parts of the body.

- (a) Discuss the mechanisms of heart valve in the normal condition and in the dysfunction valve condition.

(6 marks)

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- (b) Distinguish between the two members of each the following pairs:
- (i) end-systolic volume and end-diastolic volume
 - (ii) diastole and systole
 - (iii) systemic and pulmonary circulation
 - (iv) AV node and SA node

(8 marks)

- (c) Correlate the waves of an Electrocardiogram (ECG) with mechanical events in the atria and ventricles.

(8 marks)

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

(6 marks)

- Q4** (a) Blood is the circulating portion of the extracellular fluid. Discuss the function of cellular elements found in blood.

(6 marks)

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- (b) Lack of blood cellular elements could affect body system. Jaundice and anemia are two of the examples. Point out their significance in hematology.

(2 marks)

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- Q5** Exchange of oxygen (O_2) and carbon dioxide (CO_2) occur in two levels; in lungs and tissues. Specify between the process of exchange gas O_2 and CO_2 between the alveoli and the blood, and between the blood and the systemic tissues.

(12 marks)

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-END OF QUESTIONS-