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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2015/2016**

COURSE NAME : HUMAN PHYSIOLOGY
COURSE CODE : BEU 20103
PROGRAMME : BACHELOR OF ELECTRONIC
ENGINEERING WITH HONOURS
EXAMINATION DATE : DECEMBER 2015 / JANUARY 2016
DURATION : 2 HOURS 30 MINUTES
INSTRUCTION : ANSWER ALL QUESTIONS
PLEASE WRITE ALL THE
ANSWERS ON THE QUESTIONS
BOOKLET

THIS QUESTION PAPER CONSISTS OF TEN (10) PAGES

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Q1 Body is structurally organized into a total function unit and form the biochemical level to the whole body that support life. Within the physiological system, there are the cellular, system, and organism physiology. All of the areas are related and connected to each other to maintain a stable community.

(a) Name the **FIVE (5)** organization levels in the body.

(5 marks)

(b) Describe the structures of organization levels as mentioned in Q1(a).

(5 marks)

(c) Explain each function of organization level as mentioned in Q1(a).

(5 marks)

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(d) Skin consists of three layers: epidermis, dermis, and hypodermis.

(i) Explain the **THREE (3)** functions of skin.

(3 marks)

(ii) Predict **ONE (1)** effect when skin soaks in water for a long time.

(2 marks)

Q2 Central nervous system (CNS) and peripheral nervous system (PNS) are the two systems that involved to manage and control human movement. In both systems, receptors response subjected to adequate stimulus so that any action or movement could be done.

(a) Name **TWO (2)** types of receptor that are responsible in nervous system.

(2 marks)

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

(10 marks)

- (c) Illustrate the two receptors mentioned in Q2(a) during the stimulus triggered until the action potential is conducting to CNS.

(8 marks)

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- Q3** (a) Electromyograph is a technique for evaluating and recording the electrical activity produced by skeletal muscles during major and minor movement. Explain and discuss the reflection of muscle and other organs, when electrical shock is applied to one body.

(10 marks)

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(b) Osteoporosis is a disease that causes a thin bone tissue and reduces bone density. Commonly, the disease attacks the old people inducing the risk of a broken bone increases and bone strength decrease.

(i) Discuss the causes of osteoporosis.

(4 marks)

(ii) Describe the symptoms of osteoporosis.

(3 marks)

(iii) Consider the possible treatment of osteoporosis.

(3 marks)

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Q4 (a) An electrocardiogram (ECG) is a recording of the electrical current flowing through the heart. In a normal ECG wave, there are three distinct waves; P wave, QRS complex, and T wave. Between the waves, two segments are located; PR segment and ST segment.

(i) With the aid of ECG waveform, define the P wave, PR segment, QRS complex, ST segment, and T wave.

(5 marks)

(ii) For each wave and segment defined in Q4(a)(i), explain the correlation to the heart activity movement.

(5 marks)

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- (b) Cardiovascular system and lymphatic systems have very close relation in maintaining homeostasis in human body. Differentiate the cardiovascular system and lymphatic system in terms of the location, function, structure, medium transfer, and movement factors.

(10 marks)

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Q5 (a) Respiratory system is a biological system that consists of two sections; upper airways and respiratory tract. Upper airways is a section that allow air get in and out of the lungs, while respiratory tract is a system of passageways contain network of tubes.

(i) Describe the gas exchange in respiratory system.

(4 marks)

(ii) Discuss the conducting zone of respiratory tract.

(4 marks)

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(b) Exchange of oxygen (O_2) and carbon dioxide (CO_2) occur in two levels; in lungs and tissues. Compare the process of O_2 and CO_2 exchange;

(i) between the alveoli and the blood.

(6 marks)

(ii) between the blood and the systemic tissues.

(6 marks)

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-END OF QUESTIONS-