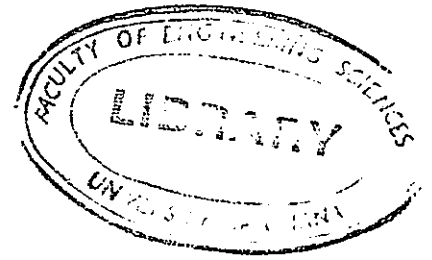




UNIVERSITY OF GHANA
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SECOND SEMESTER EXAMINATIONS: 2010/ 2011

LEVEL 300: BACHELOR OF SCIENCE IN ENGINEERING

BIEN 302: Human Biology II – Physiology (2 Credits)

TIME ALLOWED: TWO (2) HOURS

INSTRUCTION: Attempt all questions.

1. Differentiate between the following: [18 marks]
 - a. Catabolism and Metabolism
 - b. Parasympathetic Nervous System and Sympathetic Nervous System
 - c. Hyperpnea and Hyperventilation
 - d. Transcellular Reabsorption and Paracellular Reabsorption
 - e. (Effects of) Insulin and Glucagon
 - f. Cellular Respiration and Pulmonary Ventilation

2.
 - a. The spinal cord and the brain are said to be very similar in their functions but also very different. Explain. [10 marks]
 - b. With the aid of an example of what actually happens in the body, explain how a positive feedback system works. [10 marks]

3.
 - a. What is the importance of tranicytosis in the movement of substances in the body? [3 marks]
 - b. Explain how the processes of filtration and reabsorption of fluid contributes to the development of oedema. [10 marks]
 - c. Explain how energy intake and expenditure affect the Body Mass Index (BMI) of an individual. [7 marks]

4. a. A neurotoxin is a substance that produces its poisonous effect by acting on the nervous system. Explain how an injection of a neurotoxin through a snake bite might affect the process of respiration. [14 marks]
- b. Using a named hormone, explain how it regulates facultative water reabsorption during urine formation. [8 marks]
5. a. Using the process of micturition, explain how a reflex action works. [14 marks]
- b. What is the importance of seminal fluid in the process of sexual reproduction? [6 marks]

