



# NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF APPLIED SCIENCES

DEPARTMENT OF APPLIED BIOLOGY AND BIOCHEMISTRY

BACHELOR OF SCIENCE HONOURS DEGREE

MAY 2011

3 HOURS (100 MARKS)

## ANIMAL PHYSIOLOGY SBB 1206

### INSTRUCTIONS

Answer Four (4) Questions. Each question carries 25 marks. Where a question contains subdivisions, the mark value for each subdivision is given in brackets. Illustrate your answer where appropriate with large, clearly labelled diagrams

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1. Describe how the digestive system digests starches, proteins and fats and explain how the waste materials are handled.
2. After you eat, your blood plasma levels of sodium, potassium, glucose, ammonia, water, hydrogen ions, urea and amino acids increase. Your kidneys then become adjusted to remove the last 5 of these substances in this list and save the first 3. Draw a sketch of the part of the kidney that performs these tasks and explain how and where they are performed for each substance.
3. With the aid of a clearly labeled diagrams showing feedback loops, describe how the Hormones releasable from the pituitary, pancreas, kidney and adrenal glands control the arterial blood pressure in your body.
4. Describe the nervous system involvement beginning when you accidentally touch a hot kettle until the end of your reaction afterwards.
5. (a) Describe how the process of breathing, inhalation and exhalation are performed and how the nervous system controls breathing. (12 marks)  
(b) Describe the cells in the lungs and how they are involved with CO<sub>2</sub> release and O<sub>2</sub> input into the circulatory system. (13 marks)
6. Describe the pathway of a red blood cell (RBC) as it travels from the bone marrow into the blood stream, through the heart, muscles, lungs and all the vessels that it passes through including the spleen and liver. Mention the velocity of its travel in significant organs and blood vessels.

**END OF EXAMINATION**