

**NATIONAL OPEN UNIVERSITY OF NIGERIA**

**PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI - ABUJA**

**FACULTY OF SCIENCE**

**APRIL/MAY, 2019 EXAMINATIONS**

**BIO 306 GENERAL PHYSIOLOGY 11- 2 UNITS**

**INSTRUCTION: ANSWER QUESTIONS 1 AND ANY OTHER THREE.**

**TIME ALLOWED - 2 HOURS.**

1 (a) What do you understand by (i) *osmoregulators* (ii*) osmoconformers*? (2 marks)

(b) On the basis of the kind of nitrogenous waste excreted from the body, explain the different patterns of excretion, giving an example in each case. (15 marks)

(c) In what ways do terrestrial animals (i) lose and (ii) gain water? (4 marks)

(d) List the factors affecting the rate of transpiration in plants (4 marks)

2. With the aid of a diagram, describe the structure of the mammalian kidney (15 marks)

3 (a) What are the functions of blood? (4 marks)

(b) Describe the open circulatory system in the grasshopper (11 marks)

4 (a) Describe the term ‘Plasmolysis,” and illustrate the process using a single plant cell.

(11 marks)

(b) Of what value is osmosis to plants? (4 marks)

5 (a) What is a reflex action? (1 mark)

(b) Mention the types of reflex action, giving two examples in each case. (6 marks)

(c) Name three physical processes involved in the movement of molecules in plants. (3 marks)

(d) Briefly explain how water is transported to the stems and leaves in a plant. (5 marks)