



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**Plot 91, Cadastral Zone, Nnamdi Azikiwe Expressway, Jabi - Abuja**  
**Faculty of Sciences**  
**Department of Pure and Applied Sciences**  
**2021\_1 EXAMINATION** 1234

**COURSE CODE: BIO306**

**COURSE TITLE: GENERAL PHYSIOLOGY II**

**CREDIT: 2 units**

**TIME ALLOWED: 2 Hours**

**INSTRUCTION: Answer question ONE (1) and any other THREE (3) questions**

1. a. In a tabular form, mention the excretory organs/structures for each of the following organisms  
(i) *Amoeba* (ii) *Sycon* (iii) *Ascaris lumbricoides* (iv) *Periplanata americana* (v) *Taenia* sp **5 Marks**  
b. Draw a diagram 6-8 cm of an opened stoma and label fully **6 Marks**  
c. Use an arrow ONLY to indicate how water reaches the xylem of plant from the soil. **6 Marks**  
d. Explain the mode of circulation of materials in earthworm **5 Marks**  
e. State three differences between osmosis and diffusion . **3 Marks**
  
2. a. Succinctly explain the term Guttation **6 Marks**  
b. Highlight five (5) significance of osmosis **5 Marks**  
c. Explain how sharks have solved the problem of osmotic pressure **4 Marks**
  
3. a. Explain the functional characteristics of cerebrum **5 Marks**  
b. In a tabular form, mention five (5) differences between transpiration and evaporation **5 Marks**  
c. With annotated diagram, explain the mechanism by which NaCl is extruded from Chloride Cells in the marine teleosts. **5 Marks**
  
4. a. Explain the concept of perception of body balance during motion **5 Marks**  
b. List and explain the factors that affect evaporative water loss in terrestrial animals **5 Marks**  
c. How did *Tilapia* fish overcome reabsorption challenges? **5 Marks**
  
5. a. Why are transport system in plants and animals needed? **4 Marks**  
b. Enumerte the mode of excretion in a named Protozoa **5 Marks**  
c. State and explain the factors that affect the rate of diffusion **6 Marks**