

**UNIVERSITY OF AGRICULTURE, ABEOKUTA**  
**COLLEGE OF ENVIRONMENTAL RESOURCES MANAGEMENT**  
**DEPARTMENT OF AQUACULTURE AND FISHERIES MANAGEMENT**  
**SECOND SEMESTER EXAMINATION 2009/2010 SESSION**

**FIS 314: Fish Adaptation and Physiology**

**INSTRUCTION: Answer Four (4) Questions in All**

**TIME: 2 Hours 45 Minutes**

1a. With the aid of diagrammatic illustrations, explain the process of osmoregulation in both freshwater and marine fishes.

b. Describe the structure of fish kidney.

2a. Write a note on fish migration

b. Explain the following terms in fish migration:

- I. Oceanodromy
- II. Liminodromy
- III. Anadromy
- IV. Diadromy
- V. Catadromy

3a. Mention the four-phased breeding behaviour of Tilapia species *Hemichromis fasciatus*

b. Mention and explain two (2) of the phases in which adaptation of body features were demonstrated.

4a. Enumerate five (5) similarities between fish breeding processes in the wild and in fish hatcheries within the four phased breeding behaviour.

b. With an appropriate diagram ONLY, explain the classification of fish feeding patterns.

5a. With appropriate diagrams, describe ten (10) various shapes of the caudal fins of the bony fishes.

b. "Not all fishes have body shaped like the hypothetical fish"

Based on the above statement, sketch six (6) various body shapes in fishes.