



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI - ABUJA**  
**FACULTY OF SCIENCE**  
**Department of Pure and Applied Sciences**  
**June 2021 EXAMINATION**

**BIO 410 - FISHERIES & AQUACULTURE.**

**CREDIT UNIT: 3**

**TIME: 2½ Hours**

**INSTRUCTION: Answer question ONE (1) and any other FOUR (4) questions**

- 1a Give a brief description of adaptiveness of the fish body shape to its environment. (4 marks)
- 1b. Expatiate on the need for the coverings on the body of the fish. (4 marks)
- 1c. Outline the unique features of a cartilaginous fish. (8 marks)
- 1d. Give a brief account of gaseous exchange in the fish. (6 marks)
2. Write short notes on the following endocrine glands of the fish
  - a. Adrenal gland (4 marks)
  - b. Thyroid gland (4 marks)
  - c. Endocrine pancreas (4 marks)
- 3.a. Outline the criteria for fish to be considered cultivable (5 marks)
- 3.b. Describe the techniques for collection and preservation of the otoliths in a fish (7 marks)
- 4a Highlight the proper steps in the handling of fresh fish. (3marks)
- 4b. Discuss 6 characteristics of fish in the fresh state (9 marks)
- 5 a. Explain briefly the two types of surveying relevant to pond construction (2 marks)
- 5b. Based on water supply, give an account of the types of ponds. (10 marks)
- 6a. Explain the term 'hypophysation' (4 marks)
- 6.b. Outline the processes that occur during induced spawning in:
  - i. females (5 marks)
  - ii. males (3marks)