



**National Open University of Nigeria**  
**Plot 91, Cadastral Zone, Nnamdi Azikiwe Expressway, Jabi - Abuja**  
**Faculty of Science**  
**2020\_2 EXAMINATIONS**

**COURSE CODE: ESM326**

**COURSE TITLE: OCEANOGRAPHY**

**CREDIT: 2 Units**

**TIME ALLOWED: 2 Hours**

**Instruction:** Attempt question number ONE (1) and any other THREE (3) questions. Question number one (1) carries 25 marks, while the other questions carry (15) marks each.

- 1a) Outline how oceanography derived its name (2marks)
- 1b) Describe the characteristics of the following (18marks)
- i. Low Latitude Tropical Oceanic Water
  - ii. Mid Latitude Oceanic Water
  - iii. High Latitude Oceanic Water
- 1c) Write short notes on the five major world sub-seas mineral resources (5 marks)
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- 2a) Briefly explain the concept of ocean basin on the earth (8marks)
- 2b) Arrange the oceans in order of size stating their percentage equivalent (5marks)
- | Ocean | Size |
|-------|------|
|       |      |
|       |      |
|       |      |
- 2c) Name the other seas that form the 5.1% of the earth surface (2 marks)
- 3a) Outline the specie abundance models (1½ marks)
- 3b) List the categories into which the species diversity measures can be divided into (1½ marks)
- 3c) State the Margalef's Index and Menhinick index (3marks)
- 3d) State the benefits and advantages GIS in resource management (6marks)
- 3e) Define the term Biomass (3 Marks)
- 4a) Write short notes on the following
- i. Diversity Indices (3marks)
  - ii. Biotic Indices (4marks)
- 4b) Explain the concept of GIS (4marks)
- 4c) List the advantages of remote sensing using space satellites (4marks)
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- 5a) State the major limitations of remote sensing using space satellites (3marks)
- 5b) Enumerate on the standard methodologies usually employed for on ground survey (6marks)
- 5c) Highlight the key elements involved in living resources assessment methods (3marks)
- 5d) List the three major types of ecological pyramid (3 Marks)