



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**91 Cadastral Zone, Nnamdi Azikwe Expressway, Jabi, Abuja**  
**FACULTY OF EDUCATION**

2021\_2

**COURSE CODE: SED421**

**CODE TITLE: CYCLES IN NATURE BIOLOGICAL CYCLE**

**CREDIT UNIT: 2**

**TIME ALLOWED: 2 Hours**

**INSTRUCTION: Answer questions ONE and any other Two (2) questions**

**QUESTIONS**

1(a) You are invited to a seminar organized by STAN to speak on main source for living organism, In not more than five (5) sentences, describe the Carbon/Carbon Dioxide Cycle? **(12 ½) marks)**

1 (b) Discuss vividly the three kinds of plate tectonic boundaries. **(7 ½)**

1(c) State five (5) main features of Plate tectonics (lithosphere plate). **(10 marks)**

2(a) Ocean Currents are classified as either warm or cold currents based on the water temperatures. In a tabular form, differentiate between cold currents and warm currents. **(9marks)**

2(b) As a science educator, give a detailed account of four (4) types of ocean currents. **(11marks)**

3. Describe how the Carnot cycle is able to produce both hot and cold temperature **(20marks)**

4(a) Differentiate between the homo-oligomeric and heterooligomeric complexes. **(4marks)**

4(b) Explain the three (3) protein-protein interaction databases **(6marks)**

4(c) Highlight any five (5) factors that regulate protein-protein interactions. **(5marks)**

4(d) Illustrate the Conditions Essential for Full Development of Karst Topography **(5marks)**