



BOWEN UNIVERSITY (Of the Nigerian Baptist
Convention) IWO

College of Environmental Science (COEVS)

FIRST SEMESTER EXAMINATION, 2023/2024

DEPARTMENT OF ARCHITECTURE

ARC 313: ENVIRONMENTAL DESIGN (2 UNITS)

INSTRUCTION: This paper contains six questions. Answer Questions 1 and any other three (3) questions in all
TIME ALLOWED: 2 hours

USE WELL LABELED DIAGRAM(S) WHERE APPLICABLE

WARNING: Please note that you are not allowed to bring mobile phone(s) into the examination hall. Non-compliance will amount to examination misconduct and attract stiff penalty.

1. A client has commissioned you to design his company's head office which must earn a BREEAM certification. It's an eco-conscious company that subscribes to green buildings. Extensively discuss the categories you will consider so that the building can earn the highest rating in the BREEAM assessment.

(21 marks)

2. i) What do you understand by biomimicry?
ii) List 5 buildings notable globally for biomimicry in architecture and show how biomimicry was implemented

(13 marks)

3. i) What do you understand by Environment Impact Assessment?
ii) Show how different kinds of buildings might negatively affect aquatic, terrestrial and arboreal systems.

(13 marks)

4. i) Sustainable Urban Drainage Systems are imperative for environmental-friendly built environment. Describe the features that make up SUDS, and how they work?
ii) Write LID (used in the USA) and WSUD (used in Australia) in full.

(13 marks)

5. Describe and illustrate the possible passive design strategies useful for thermal comfort and energy efficiency in sustainable buildings.

(13 marks)