



NATIONAL OPEN UNIVERSITY OF NIGERIA

Plot 91, Cadastral Zone, Nnamdi Azikiwe Expressway, Jabi - Abuja

Faculty of Science

Department of Pure and Applied Science

2023 2 EXAMINATIONS_

COURSE CODE: BIO 304 (2 CREDIT UNITS) TIME ALLOWED: 2HOURS

COURSE TITLE: GENERAL ECOLOGY

INSTRUCTION: Answer question ONE (1) and any other THREE (3) Questions only

- 1a Define the term ecosystem
- 1b What are the fundamental steps in the operation of the ecosystem
- 1c List the major organism groups in an aquatic ecosystem
- 1d Describe the process of Water cycle in the atmosphere

- 2 Differentiate between a Habitat and a Niche of an ecosystem

- 3 Explain the various characteristic features of a population

- 4a Briefly explain each of the following concepts:
 - i Primary productivity
 - ii Gross primary productivity
 - iii Net primary productivity
 - iv Ammonification
 - v Uptake of Nitrogen by plants.

- 4b what is the significance of primary productivity?

- 5 Describe the process of nutrient cycling within an ecosystem.

(c) When data is transmitted from a transmitter to receiver, there can be transmission errors. List three (3) major causes of transmission problems.

(3 marks)

(d) What is the full meaning of CIDR

(1 mark)

Q5.

(a) Define modulation and mention its types.

(5 marks)

(b) Distinguish between Simplex, Half Duplex and Full Duplex Communication

(6 marks)

(c) Write out the full meaning of the routing protocol OSPF

(1 mark)

Q6.

(a) In the table below, identify the layers of the OSI model to which the data packages belong.

(6 marks)

Data Package Name	Layer
Application Protocol Data Unit	Application Layer
Bit	(i)
Frame	(ii)
Datagram, packet	(iii)
Session Protocol Data Unit	(iv)
Protocol Data Unit (PDU)	(v)
Segment	(vi)

(b) Briefly discuss two (2) factors that have led to the rapid growth of Internet in recent times. (2 marks)

(c) What is the main difference between the analogue and digital modes of data transmission? (2 marks)

(d) Explain briefly why connection-oriented services known as reliable services. (2 marks)