



NATIONAL OPEN UNIVERSITY OF NIGERIA
PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI-ABUJA
FACULTY OF COMPUTING
DEPARTMENT OF COMPUTER SCIENCE
2025_2 EXAMINATIONS.

COURSE CODE: CIT 852

Credit: 3 units

COURSE TITLE: DATA COMMUNICATION AND NETWORK

TIME ALLOWED: 2½ Hours

INSTRUCTION: Answer Question 1 and any other THREE (3) Questions

- 1a) In Computing two or more autonomous systems constitute a Computer Network, List Four central goals of Computer network? **(4 marks).**
- b) What are the principal reasons for Congestions in computer networks? **(3 marks)**
- c) Briefly explain the following applications of computer networks:
- i) Interactive Entertainment **(2 marks)**
 - ii) Share Resources and Information **(2 marks)**
- d) List two merits and two demerits of Asynchronous Transfer Mode (ATM) Network technology. **(4 marks)**
- e) Cellular topology by convention divides nodes into cells, Discuss the underlying concepts of Cellular Topology and state its merits(s) and demerit(s). **(8 marks)**
- f) How does Connection-oriented services work? **(2 marks)**
- 2 a) Describe the Optical Fibre cable and state its advantage(s) and disadvantage(s). **(8 marks)**
- b)** Using appropriate conceptual illustration, explain the process of Piggybacking **(7 marks)**
- 3 a) Using appropriate tabular representation, Distinguish between TCP/IP and OSI and reference models. **(8 marks)**
- b) Briefly discuss Microwave transmission? Enumerate two merits and two demerits of microwave transmission. **(7 marks)**
- 4a) Enumerate three mechanisms used for synchronization in data communication **(3 marks)**
- b. Briefly explain any two of the mechanisms listed in (5a) bringing out their merits(s) and demerits(s) **(12 marks)**
- 5a) Briefly describe the following networks:
- i) Broadcast networks **(4 marks)**
 - ii) Point-to-point networks **(3 marks)**
- b) i) Briefly explain Attenuation. **(5 marks)**
- ii)** if there is a huge memory at the router level, congestion gets worse instead of improving according to Naggle. What is responsible for this phenomenon? **(3 marks)**
- 6a) With illustrative example(s) where necessary, explain the use and importance of Bit Patterns **(9 marks)**
- b)** Discuss the Automatic Repeat Request (ARQ) protocol **(6 marks)**