



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: CIT305

COURSE TITLE: NETWORKING AND COMMUNICATION TECHNOLOGY COURSE CREDIT: 3 UNITS

TIME ALLOWED: 3 HOURS

INSTRUCTION: ANSWER QUESTION 1 AND ANY OTHER THREE (3) QUESTIONS

Question 1: (25 marks)

- a. In a tabula form, explain the OSI model from the topmost layer to the bottom layer, depicting each of the following:
 - i. The number of each layer (7 marks)
 - ii. The name of each layer (7 marks)
 - iii. The main function of each layer (7 marks)
- b. Explain the application of multiplexing within the following contexts:
 - i. Telephony (2 marks)
 - ii. Video processing (2 marks)

Question 2:

- 2a. Write short notes on the following types of IP networks classes: (6 marks)
 - (i) Class A
 - (ii) Class B
 - Class C
- 2b. Differentiate between interior routers and exterior routers as used in IP environment (3marks)
- 2c. Outline and discuss any three of the five wireless technologies in use (6 marks)

Question3:

- a. Briefly describe Infrared communication as used in wireless technologies (3 marks)
 - (ii) Differentiate between Intranets and extranets (3 marks)
 - (iii) State any four predefined enterprise networks are created upon installation (2 marks)
- b.
 - (i) State four most common network protocols in data communication (2 marks)
 - (ii) IEEE 802 splits the OSI data link layer into two sub-layers. List these layers (2 marks)
 - (iii) State any six typical project business requirements used for effective network planning and design (3 marks)

Question 4

- 4a. What is the aim of digital modulation? (3 marks)
- (ii) List any four components of ISDN as defined by ITU standards (4 marks)
- (iii) State any four predefined enterprise networks are created upon installation (2 marks)
- (iv) IEEE 802 splits the OSI data link layer into two sub-layers. List these layers (2 marks)
- (v) Identify the four sources of transmission impairment. (4 marks)

Question 5

Write short notes on the following key strategies for ensuring efficient network security in data communication:

- (a) Prevent unknown applications (3 marks)
- (b) Use security applications from reliable vendors (3 marks)
- (c) Establish effective configuration management processes (3 marks)
- (d) All connections to the network must be known (3 marks)
- (e) What do you understand by Residual Networks? (3 marks)

Question 6

- (i) Write short notes on the following common types of threats- that affect enterprise network when connect to the internet: (6 marks)
 - (i) Insider threats
 - (ii) Malware
 - (iii) Socially engineered attacks
- (ii) Briefly describe the activities carried out in Business requirements as a step to Effective Network Planning and Design (6 marks)
- (iii) Which IP address is part of a residual network? (3 marks)