



NATIONAL OPEN UNIVERSITY OF NIGERIA
PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI, ABUJA
FACULTY OF COMPUTING
DEPARTMENT OF COMPUTER SCIENCE
2024_2 EXAMINATION

COURSE CODE: CIT305

COURSE TITLE: NETWORKING AND COMMUNICATION TECHNOLOGY

COURSE CREDIT: 3 UNITS

TIME ALLOWED: 2½ HOURS

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

QUESTIONS

1a. You have just been invited to an organization that needs to set up a network to enable its employees communicate effectively and you are required to recommend the key steps you would adopt to ensure the effective planning and design of the network.

- i. List the key steps you will consider in order to ensure the effective planning and design of the University's network **(9 marks)**
- ii. Give a brief explanation of the network planning and design methodology **(4 marks)**

1b. Name and briefly describe the roles of the three (3) core protocols for the *IPv4* Internet layer. **(9 marks)**

1c. Enumerate the three (3) common forms of impairment within the context of Networking and Communications Technology **(3 Marks)**

[Total = 25 marks]

2a Briefly describe the terms “enterprise private network” in configuring access rules in computer networking **(3 marks)**

2b List any 3 common types of threats affecting enterprise network when connected to the internet. **(6 marks)**

2c State any three Standard design requirements used for effective network planning and design **(3 marks)**

2d Differentiate between Intranets and extranets **(3 marks)**

3a Briefly describe the following as relates to computer networking

- i. LAN (3 marks)
- ii. WAN (3 marks)
- iii. Home Area Network (3 marks)

3b List and briefly describe 3 purposes of Computer Networks (6 marks)

3c List 3 types of Networking based on physical Scope (3marks)

4a Briefly describe the following terms

- i. Internet (3 marks)
- ii. Intranet (3 marks)
- iii. Extranet (3 marks)

b. What is the relevance of ISP in internet connectivity? (3 marks)

4c State three (3) major functions of the Data link layer. (3 Marks)

5. List the 3 common digital modulation techniques. (3 marks)

ii. State one advantage and one disadvantage of each of the digital techniques mentioned above. (6 marks)

iii Differentiate between Amplitude-Shift keying (ASK) and Frequency- Shift Keying (FSK). (3 marks)

iv Networks can be classified based on their scale. Write down any three (3) of such scale-based networks. (3 marks)

6a. What is Integrated Services Digital Network (ISDN)? (4 marks)

ii State one advantage of *ISDN* over other digital communications technologies(2 marks)

6b. Itemize the three basic types of channels defined by *ISDN* Standard (3 marks)

ii State three (3) major functions of the Data link layer (3 Marks)

6c Write down three (3) features of the virtual circuit switching. (3 Marks)