



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI-ABUJA**

**FACULTY OF SCIENCE**  
**DEPARTMENT OF COMPUTER SCIENCE**  
**JANUARY 2021 EXAMINATION**

**COURSE CODE: DAM361**

**COURSE TITLE: BUSINESS COMMUNICATION AND NETWORKS**

**CREDIT UNIT: 2**

**TIME ALLOWED : 2 Hours**

**INSTRUCTION: ANSWER QUESTION ONE (1) AND ANY THREE OTHERS**

- 1 a. What is transmission medium/media? **(1mark)**
- b. Explain with examples of two types of transmission media **(6marks)**
- c. What is MAC address and IP address? **(1mark)**
- d. Differentiate between MAC address and IP address **(3marks)**
- e. What is difference between The Internet and The Web? **(1marks)**
- f. Historically, how did TCP/IP emerged? **(3marks)**
- g. Indicate the meaning of the acronym of the common protocols of TCP/IP - HTTP, HTTPS, FTP. **(3marks)**
- h. You have been allocated a class A network address of **29.0.0.0**. You need to create at least 20 networks and each network will support a maximum of 160 hosts. Would the following two subnet masks - **255.255.0.0** and or **255.255.255.0**- work? **(3marks)**
- i. What are these three forms of business organizations that are recognized in Nigeria? Provide a definition of each of the forms of the business organization you specified **(4marks)**
  1. sole proprietorship
  2. general partnership
  3. corporation
  4. limited liability company

**Question 2**

- a. Explain the types of networking media would be most appropriate for the following scenarios and justify the reasons for selecting it. **(4 marks)**
- b. An IT research lab researching big data search and storage solutions with data center research facilities located across a large geographic area **(4 marks)**
- c. A festival venue based at a farm with a fixed broadband connection, where several thousand festival goers attend a festival several times a year and for the remaining time the fields are used for sheep grazing **(4 marks)**

d. Explain and justify which IP routing protocol is best for WAN connectivity in a scenario where two large organization either by merge or acquisition become one organization with different vendor's routers and they want to minimize the impact of routing changes between the organizations **(3 marks)**

**Question 3:**

a. Briefly discuss the functions of each of the following terms and explain their relationship to WAN connectivity.

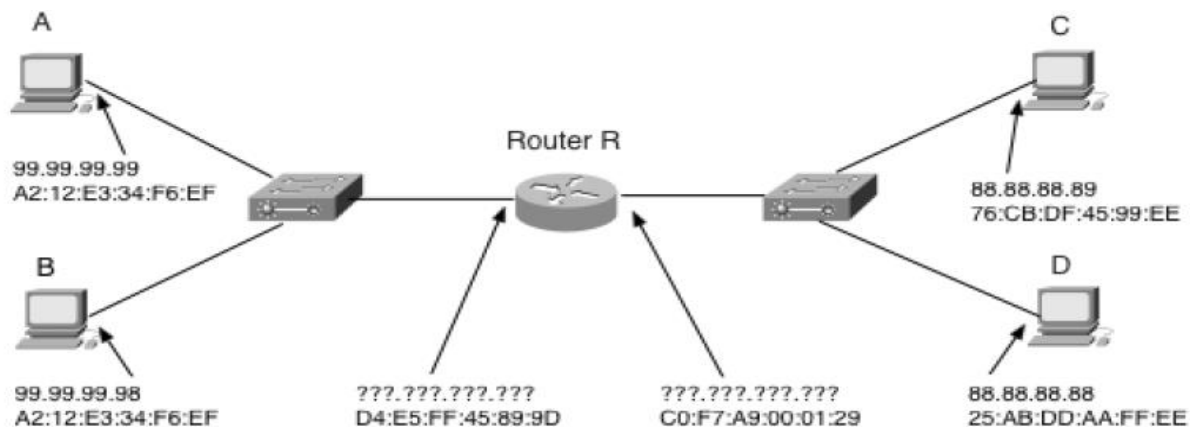
- i. DCE (Data Communications Equipment) **(2marks)**
- ii. DTE (Data Termination Equipment) **(2marks)**
- iii. CSU/DSU/NTU (Channel Service Unit/Data Service Unit/Network Terminating Unit) **(3marks)**
- iv. CPE (Customer Premises Equipment) **(2marks)**
- v.. Demarcation point - Also called point of demarcation (POD) **(2marks)**
- vi. Local loop **(1mark)**

b.. Discuss why fiber optic cables are more suitable than copper wired or wireless media for high voltage AC environments. **(3marks)**

**Question 4**

a.. Explain the key protocol and operational differences between Ethernet (IEE 802.3) and Wireless LAN's (IEEE80.11) **(3marks)**

b. Study the diagram provided and answer each of the following question



i. Given that the subnet mask used in the scenario is /24: Explain which IP addresses can be assigned and the ones not assigned to the computers or hosts in both the left and right side of the router R and indicate why?

**(5marks)**

ii. Which IP addresses can be assigned to the left and right interfaces interface of the router R

**(2marks)**

iii. Suppose computer A wants to send an IP datagram to computer B and knows B's IP address. Does computer A need to know computer B's MAC address to send the datagram to computer B? If yes, explain the operation used by A to obtain B's MAC address. If not, explain why not and what information would be used for the datagram to arrive to computer B.

**(3marks)**

iv. Suppose computer A wants to send an IP datagram to computer C and knows C's IP address. Does computer A also need to know C's MAC address to send the datagram to computer C? If yes, explain the operation used by A to obtain C's MAC address. If not, explain why not and what information would be used for the datagram to arrive to computer C.

**(2marks)**

**Question 5**

a. How can you identify the IP class of a given IP address?

**(4marks)**

b. Given the following protocols, indicate in which layer of the TCP/IP protocol architecture each can be found?

**(3marks)**

i. Ethernet

ii. SMTP

iii. Optical fiber

c. What is Domain Name Service (DNS). **(3marks)**

d. How DNS queries are resolved in the DNS system with recursive and iterative queries

**(2marks)**

e. What is the difference between Network Hub, Network Switch, and Network Router? **(3marks)**