## CROSS RIVER UNIVERSITY OF TECHNOLOGY, CALABAR
## DEPARTMENT OF COMPUTER SCIENCE
## CSC 4202: COMPUTER NETWORK ADMINISTRATION. TIME: 2 HOURS

**INSTRUCTIONS: ANSWER QUESTION ONE AND ANY OTHER TWO**

**Q1**    Ram and Byte Ltd opened its Calabar office for business in 1998. The company is a wholesale outlet for Computer and Networking Services. R&B Ltd employs five people at its Calabar office. A major element of the company's business strategy is to expand nationally. Recently the Managing Director purchased an office in Lagos. Due to the rapid growth of the company, the Calabar office recently recruited an Accounts Manager, two Sales Representatives, two Store persons, an Office Manager and a Network Administrator. The company is in the midst of refurbishing the Lagos office and has also employed for the Lagos office an Assistant General Manager, one Store person, one Accounts Clerk, one Sales Representative and a Receptionist. The new organizational changes are to be implemented by the end of the financial year. Figure 1 represents the existing information technology infrastructure at the company's Calabar office. Currently the office is situated on one floor only.

The Managing Director of the company approached an external consultancy firm that is you to design an information and communication infrastructure that would support the current information needs and future growth of R&B Ltd. After consultation it was agreed that the company would move to a Client Server based network. Figure 2 represents the new network.

As the successful applicant for the Network Administrator's position, you have been requested by the Managing Director to provide input into the development and configuration of the new network.

Question A Figure 1 details the existing computer network installed at the Calabar office. Name the type of physical network topology used in the existing network. What are the advantages and disadvantages of this topology?

Question B Figure 2 details the proposed new network to be implemented by the end of the financial year. List two advantages associated with the use of this type of network topology compared to the original network at the Calabar office (Figure 1).

Question C Name the proposed new network solution (Figure 2). Explain why this network solution would be proposed.

Question D How would the network be administered and with what kind of network administrative tools.

**Q2** (I)   Match the following types of connectors with the cables to which they are used.

Cable: (a) Thick Coax (100 Base 5), (b) UTP (10 Base-T), (c) Fiber Optics (10 Base-FL) (d) Thin Coax (100 Base)

Connectors: (1) AUI, (2) BNC, (3) RJ45, (4) SC or ST Type

(II)    Match the following protocols and their functions

(a) http, (b) pop, (c) ftp, (d) smtp, (e) mime

1. Send email messages 2. Transfer multimedia information 3. Send email attachment 4. Transfer files in servers and clients computers 5. Receive emails messages

**Q2b**    What are the benefits of PoE?

**Q3**    Cabling optical fiber makes them easier to handle, facilitates connector termination, and provides protection, and increases strength and durability. The cable manufacturing process differs depending upon whether the optical fibers are intended for use in indoor, outdoor, or indoor/outdoor environments. Explain the differences.

**Q4**    In 1998, the third (and current) version of the SNMP protocol entered as a spec proposal. From a user's perspective, the most relevant change was the adoption of a user-based security system. It allows you to set a user's authentication requirements as one of these models. Name and explain the models.

**Q5**    Maintaining a network can be both time consuming and complex. A range of audits must be completed by the Network Administrator when the network is commissioned.

a.    Why are network audits necessary? And what is CNM and CNM

b.    Describe the term 'benchmark' (baseline) as referred to in an audit.

c.    List three audits that should be performed on a new network.