

**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**FACULTY OF APPLIED SCIENCES**  
**COMPUTER SCIENCE DEPARTMENT**  
**MAY 2001 EXAMINATIONS**

**SUBJECT: COMPUTER COMMUNICATIONS AND NETWORKS**  
**CODE: SCS4107**

**INSTRUCTIONS TO CANDIDATES**

1. This question paper consist of EIGHT (8) questions answer any Five (5)
2. Each questions carries 20 marks

**LIBRARY USE ONLY**      **Time three (3) hours**

1. As a computer network specialist of ABC company,
  - [a] Give a detailed explanation on why it is necessary and it pays to install computer networking within your company. [10]
  - [b] Highlight the social ethical and political problems, which may arise with the introduction of computer networks. How do you justify these from your bosses? [4]
  - [c] Briefly, explain the following transmission technologies:
    1. Broadcast networks
    2. Point-to-point networks. [6]
2. [a] Network Access Controls involved in the peer to peer and the client/server networks are "share-level access control:" and "user-level access control" respectively. Could you please explain the two network access controls? [10]
  - [b] Explain the following terms:
    - [i] Simplex transmission [1]
    - [ii] Full duplex transmission [1]
    - [iii] CSMA/CD [2]
    - [iv] TCP/IP Protocol [2]
    - [v] Synchronous transmission [2]
  - [c] What is known as passive network security attack? [2].

3. Using a diagram, give a detailed account of the seven layers of OSI reference model. [20]
4. [a] Briefly explain what is Stop-and-Wait Flow Control. [4]
- [b] Compare and contrast virtual circuit switching and datagram packet switching technique of data transfer. ✓ [10]
- [c] What is the principal difference between connectionless communication and connection-oriented communication? [6]
5. [a] Give a detailed explanation of the following LAN topologies and comment on the type medium access controls involved with each.
- i Star [5]
- ii Bus [5]
- iii Hybrid [4]
- [b] Define the following and tell where you could use them
- [i] Routers [3]
- [ii] Repeaters [3]
6. [a] Describe the IEEE 802.5 token ring Protocol. Use a diagram to illustrate your answer. [10]
- [b] In detail give the differences between FDM and TDM. [10]
7. [a] Name and explain any 2 applications of data and computer networks. [6]
- [b] Explain the packet switching routing strategy/technique called "Flooding". [6]
- [c] In your own words describe characteristics Asynchronous Transfer Mode. [8]
8. Explain the followings:
- [i] Transceiver [3]
- [ii] Printer Server [3]
- [iii] Front-End-Processor [4]
- [iv] Concentrator [5]
- [v] Fiber optic cable [5]

END OF QUESTION PAPER