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

SUBJECT: COMPUTER COMMUNICATIONS AND NETWORK
CODE: SCS 6103

INSTRUCTIONS TO CANDIDATES

1.   Answer any five (5) questions.
2.   Each question carries 20 marks

3 HOURS

1.   [a]   Give a detailed account of the following networks:

        [i]   Local Area Network   [5]
        [ii]   Wireless networks   [5]

    [b]   Compare and contrast the main features of

        [i]   Peer-to-peer network and Client/server network

        [10]

2.   [a]   Using a diagram, explain the TCP/IP reference model and show its similarities and differences to ISO model.   [14]
    [b]   Using a diagram, describe the conventional encryption technique. [6]

3.   Define the following data communication terms:

[a]	Band rate	[1]
[b]	Broadband Channel	[1]
[c]	Data Terminal Equipment (DTE)	[2]
[d]	Asynchronous Transmission	[2]
[e]	Parallel data transmission	[3]
[f]	Serial data transmission	[3]
[g]	Hand Shaking	[1]
[h]	Half Duplex	[1]
[i]	Multiplexor	[2]
[j]	Phase modulation	[3]
[k]	Contention Technique	[1]

1

4. [a] What is the principal difference between connectionless communication and connection-oriented communication?. [6]

   [b] Using a diagram, give a detailed account of Packet Switching Protocol. [10]

   [c] Why was the Integrated Services Digital Networks (ISDN) developed? [4]

5. [a] Compare and contrast Frame Relay and Asynchronous Transfer Mode (ATM). [12]

   [b] [i] Describe what is meant by Medium Access Control (MAC) Protocol. [2]
   [ii] What are the advantages and disadvantages of centralized medium access control scheme? [6]

6. [a] Give an account of the FDDI Topology, and your discussions, explains how token passing is used. [10]

   [b] What is the main difference between Logical Network and Physical Network? [4]

   [c] What are the advantages and disadvantages of Bus Network topology? [6]

7. [a] Describe the universal technique for providing data transmission privacy known as conventional encryption. Use a diagram to illustrate your answer. [8]

   [b] In detail give an account of Adaptive Routing strategy/technique. [6]

   [c] Explain what is meant by congestion control and describe any two control mechanisms for packet switching congestion. [6]

8. [a] Compare and contrast the following guided transmission media by giving their characteristics;

   [i] Unshielded Twisted pair (UTP)
   [ii] Coaxial cable [12]

   [b] What are transmission impairments? [2]

   [c] Describe any two type impairments associated transmission media. [6]

END OF QUESTION PAPER