CS/M.Tech (ECE)/SEM-2/ECM-204B/09

DATA COMMUNICATION AND COMPUTER NETWORKS (SEMESTER - 2)

1. ....
Signature of Invigilator

2. ....
Signature of the Officer-in-Charge

Reg. No. | | | | | | | | | | | | | | | |

Roll No. of the Candidate | | | | | | | | | | | | | | | |

CS/M.Tech (ECE)/SEM-2/ECM-204B/09

ENGINEERING & MANAGEMENT EXAMINATIONS, JULY – 2009

DATA COMMUNICATION AND COMPUTER NETWORKS (SEMESTER - 2)

Time : 3 Hours] [Full Marks : 70

INSTRUCTIONS TO THE CANDIDATES :

1. This Booklet is a Question-cum-Answer Booklet. The Booklet consists of **32 pages**. The questions of this concerned subject commence from Page No. 3.
2. You have to answer the questions in the space provided marked 'Answer Sheet'. Write on both sides of the paper.
3. **Fill in your Roll No. in the box** provided as in your Admit Card before answering the questions.
4. Read the instructions given inside carefully before answering.
5. You should not forget to write the corresponding question numbers while answering.
6. Do not write your name or put any special mark in the booklet that may disclose your identity, which will render you liable to disqualification. Any candidate found copying will be subject to Disciplinary Action under the relevant rules.
7. **Use of Mobile Phone and Programmable Calculator is totally prohibited in the examination hall.**
8. You should return the booklet to the invigilator at the end of the examination and should not take any page of this booklet with you outside the examination hall, **which will lead to disqualification**.
9. Rough work, if necessary is to be done in this booklet only and cross it through.

No additional sheets are to be used and no loose paper will be provided

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Marks Obtained

Question Number											***Total Marks***	***Examiner's Signature***
Marks Obtained												

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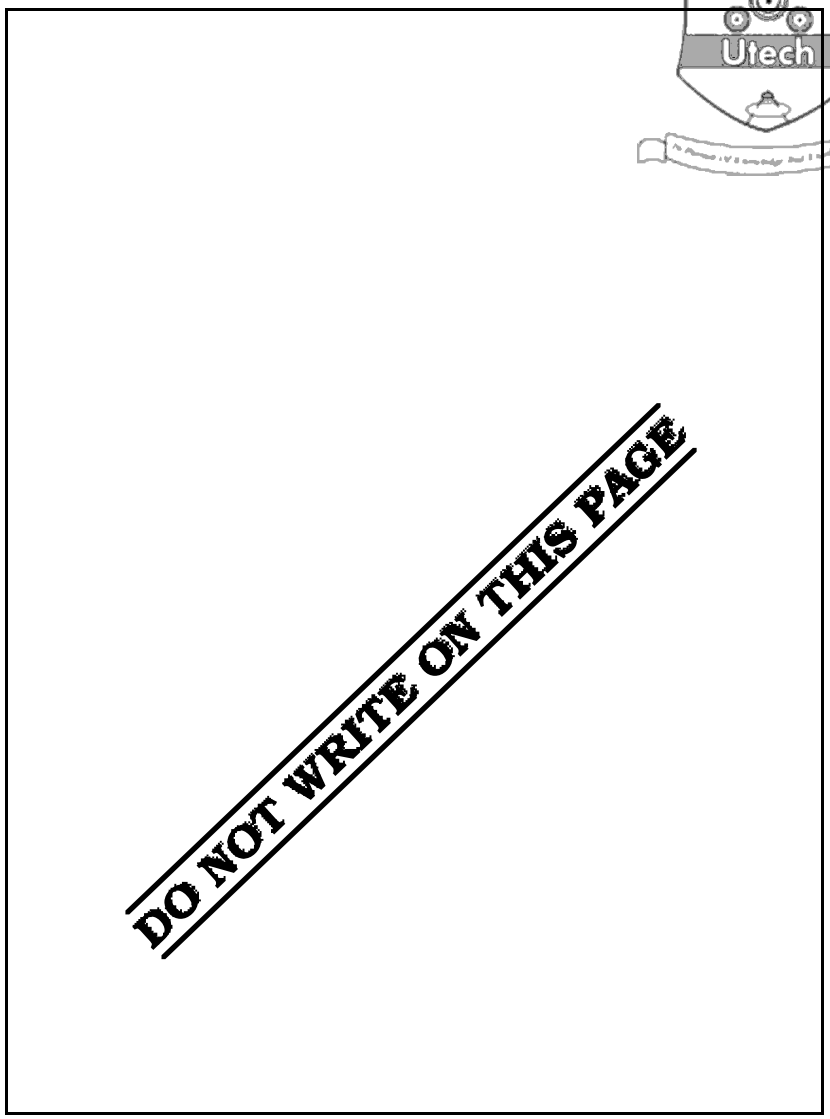
Head-Examiner/Co-Ordinator/Scrutineer

42004 (03/07)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CS/M.Tech (ECE)/SEM-2/ECM-204B/09
DATA COMMUNICATION AND COMPUTER NETWORKS
SEMESTER - 2

Time : 3 Hours] [Full Marks : 70

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

Answer Question No. 1 and any *five* from the rest taking at least two questions from each Group A & Group B.

1. Answer *all* questions : 5 ∞ 2

   a) Differentiate between TCP.

   b) What is piggybacking ?

   c) What is the purpose of sending jamming signal in CSMA ?

   d) IP addresses are unique and universal. Justify.

   e) What is QoS ? What are the techniques used to achieve good QoS ?

GROUP – A

2. a) Describe the ISO/OSI model mentioning the function of each layer and compare it with TCP/IP model.

   b) Briefly discuss the different topologies of a network with their respective merits and demerits.

   c) Draw a hybrid topology with a bus backbone connecting two ring backbones and each ring backbones connects three star networks. 7 + 3 + 2

3. a) Describe the high speed data access MODEMs starting from Telephone MODEM to Cable MODEM through ADSL MODEM.

   b) What are the different ITU-T standard of MODEM ?

   c) How the upstream and downstream speed differ in MODEM ? Justify. 7 + 2 + 3

4. a) Discuss different level of digital signal services with corresponding *T* line to carry those services.

   b) A multiplexer combines four 100 Kbps channel using a time slot of 2 bits. Show the output with four arbitrary input. Find frame rate and frame duration, bit rate, bit duration.

   c) Briefly discuss different multiplexing techniques. 3 + 3 + 6

5. a) Describe CRC and checksum mechanism of error detection.

   b) Discuss various random access protocols.

   c) The received code is 11110101101. Using the hamming encoding algorithms. What was the original code sent ? 5 + 5 + 2

GROUP – B

6. a) Discuss Stop & Wait ARQ and Go-Back-N-ARQ mechanism of flow control.

   b) Discuss framing in connection with datalink layer design issues. 6 + 6

7. a) Briefly discuss shortest path routing algorithm with the help of an example.

   b) Name different ATM layer and discuss their function.

   c) A network offer both circuit and packet switching facilities. Given that *Ts* = circuit setup time/station, *Tq* = process and queing delay, *p* = databits in a packet, *d* = overhead bits/packet, *R* = data rate in bps in each link, *k* = no. of links in both circuit and packet connection. Compare the delay in sending a message of bits in circuit & packet switch mode. Under what condition the packet switching mode has a lower delay ? 4 + 4 + 4

8. a) Show how the total addresses are splitter into blocks and assigned to organization in Class *A*, *B*, *C* addresses.

b) Given a network 220. 23. 65. 0, construct four subnet from it.

c) Describe the packet switching procedure in a network and calculate the delay associated with it. 4 + 2 + 6

9. a) What is the difference between flow control and congestion control ? Describe Leaky bucket algorithm.

b) What are the ISDN channels and services ?

c) Discuss ISDN functional grouping reference point with the help of a diagram. What are the disadvantages of ISDN & how are they overcome by *B* ISDN ?

5 + 3 + 4

END