COMPUTER NETWORK (SEMESTER - 6)

CS/B.Tech(CSE)/SEM-6/CS-601/09

1. .....
Signature of Invigilator

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

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

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

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CS/B.Tech(CSE)/SEM-6/CS-601/09

ENGINEERING & MANAGEMENT EXAMINATIONS, JUNE – 2009

COMPUTER NETWORK (SEMESTER - 6)

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. a) In **Group – A**, Questions are of Multiple Choice type. You have to write the correct choice in the box provided **against each question**.
   b) For **Groups – B** & **C** you have to answer the questions in the space provided marked 'Answer Sheet'. Questions of **Group – B** are Short answer type. Questions of **Group – C** are Long answer type. 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

FOR OFFICE USE / EVALUATION ONLY

Marks Obtained

	Group – A										Group – B			Group – C				
Question Number																	***Total Marks***	***Examiner's Signature***
Marks Obtained																		

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Head-Examiner/Co-Ordinator/Scrutineer

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GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : 10 ∞ 1 = 10

i) IEEE 802·5 standard is for

a) Token Ring b) Ethernet

c) ALOHA d) CSMA.

ii) Port No. in packet indicates

a) LAN card port number in a computer

b) Host Identification No. in network

c) Unique No. for a communicating process

d) PID No. of a communicating process under O/S.

iii) To locate the destination, ARP request packet contains

a) broadcast address b) destination logical address

c) multicast address d) none of these.

iv) 4-way handshaking of connection establishment is associated with

a) HTTP protocol b) UDP protocol

c) TCP protocol d) FTP protocol.

v) A class B destination IP address in a packet in the form 0.0.5.25 indicates

a) 'this' host in 'this' network b) a host in 'this' network

c) any host in 'this' network d) a host in any network. ☐

vi) Identify the class of IP address 191.1.2.3.

a) Class A b) Class B

c) Class C d) Class D. ☐

vii) In go_back_n ARQ, if frames 4, 5, 6 are received successfully then the receiver can send an ACK ..... to the sender.

a) 5 b) 6

c) 7 d) any of these. ☐

viii) Which of the following routing algorithms requires more traffic between routers for setup and updating ?

a) Distance vector b) Link state

c) Dijkstra d) Vector link. ☐

ix) *E*-mail cannot be sent

a) if the sending site does not use TCP/IP

b) if the receiving site does not use TCP/IP

c) through private networks

d) none of these. ☐

x) If the baud rate is 400 for a 4 PSK signal, the bit rate is ..... bps.

a) 100 b) 400

c) 800 d) 1600. [ ]

xi) A ..... can forward or block messages based on the information in the message itself.

a) proxy firewall b) packet filter firewall

c) message digest d) private key. [ ]

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 ∞ 5 = 15

2. a) Define baseband and broadband transmission ?

b) What is the application of TDM Switching ? What is multiplexing ? 2 + (2 + 1)

3. a) In Selective Reject ARQ the size of the sender and receiver window must be at most one half of 2^m , explain it.

b) What do you mean by 'Piggybacking' ? 3 + 2

4. a) What are the basic differences between Router and Gateway ?

b) Distinguish between the two terms 'internet' and 'intranet'. 3 + 2

5. a) State the difference between Bit rate & Baud rate ?

b) State Nyquist theorem. 2 + 3

6. a) Draw a space division three stage switch. There are 18 inputs and 20 outputs. Stage 1 has three switches, stage 2 has two switches and stage 3 has four switches. How many cross points are needed to compare this to a system using just one crossbar ?

b) Draw the waveform for 11001110 in each of the following encoding methods :

NRZ I and Differential Manchester. 3 + 2

7. a) Find the bandwidth for a QPSK signal transmitting at 2kbps. The transmission is in full duplex mode.

b) A digital signaling system is required to operate at 9600 bps. If a signal element encodes 16 bit word, what is the minimum bandwidth required for this channel ? 3 + 2

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 ∞ 15 = 45

8. a) What are the advantages and disadvantages of using Distance Vector Routing algorithm ?

b) How do ARP & RARP work in TCP/IP ?

c) Draw the IPV4 Datagram Header Format and explain it. 4 + 4 + 7

9. a) What do you mean by Private key and Public key Cryptography ? Why is it used ?

b) Compare and contrast between a circuit switched network and a packet switched network.

c) What are the basic differences between Pure ALOHA and Sloted ALOHA ? Draw the flowchart of CSMA/CD protocol. 4 + 2 + 3 + 2 + 4

10. a) Let the ASCII character M (1001101) has to be transmitted from source to destination. Let the receiver receives the data with any one bit corrupted. Use the Hamming code to identify the corrupted bit position so that it can be automatically corrected by the receiver to avoid retransmission.

b) Describe any one guided and one unguided media with diagram.

c) Explain at least three reasons why the TCP/IP model came out as winner in the battle of the internet over ISO-OSI. 7 + 5 + 3

11. a) Besides bandwidth and latency which other parameters are needed to give a good characterization of QoS offered by a network used for digitized voice traffic.

b) Explain with diagram, how the lost frame, delayed and lost acknowledgements are handled in Go-Back-N ARQ.

c) What do you understand by data privacy ? How can authentication, integrity and non-repudiation be implemented by the digital signature technique ? 6 + 5 + 4

12. Write short notes on any three of the following : 3 ∞ 5

a) DNS

b) Optical fibre

c) IEEE 802.5

d) SMTP

e) Frame format of HLDC.

END