COMPUTER COMMUNICATION (SEMESTER - 8)

CS/B.TECH(EE)/SEM-8/EC-802C/09
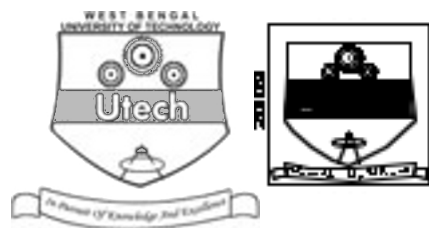
1. ....
   Signature of Invigilator

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

Reg. No.

Roll No. of the Candidate

CS/B.TECH(EE)/SEM-8/EC-802C/09

ENGINEERING & MANAGEMENT EXAMINATIONS, APRIL – 2009

COMPUTER COMMUNICATION (SEMESTER - 8)

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			Total Marks	Examiner's Signature
Question Number																			
Marks Obtained																			

....
Head-Examiner/Co-Ordinator/Scrutineer

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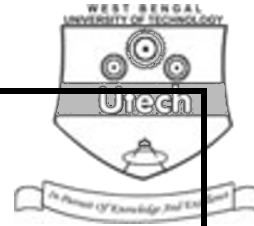
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GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct answer for any *ten* of the following :   10 × 1 = 10

    i)   ASK or FSK occurs during the transmission of

         a) Digital data, digital signal   b) Digital data, analog signal

         c) Analog data, analog signal   d) Analog data, digital signal.

    ii) Presentation layer is responsible for

         a) Data encryption   b) Error control

         c) Routing   d) None of these.

    iii) MAC sub layer is implementing

         a) CDMA   b) CDMA/CD

         c) Aloha Protocol   d) CRC.

    iv) Process to process communication is done through

         a) Network layer   b) Transport layer

         c) Physical layer   d) Data link layer.

    v)   What is max data capacity for optical fiber cable ?

         a) 10 mbps   b) 100 mbps

         c) 1000 mbps   d) 10000 mbps.

    vi) For large networks, ... topology is used.

         a) Bus   b) Star

         c) Ring   d) None of these.

vii) Network cable lies on .... layer.

a) Application   b) Network

c) Physical   d) Data link.

viii) A standalone program that has been modified to work on a LAN by including concurency controls such as file and record locking is an example of

a) LAN intrinsic software   b) LAN aware software

c) Groupware   d) LAN ignorant software.

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

a) 100   b) 400

c) 800   d) 1600.

x) The Hamming code is a method of ....

a) error detection   b) error correction

c) error encapsulation   d) both (a) and (b).

xi) At the CRC generator, ... added to the data unit after the division process.

a) 0s are   b) 1s are

c) the polynomial is   d) the CRC remainder is.

xii) If a signal has bandwidth of 3.4 kHz, then the bandwidth after FM modulation should be

a) 34 kHz   b) 68 kHz

c) 340 kHz   d) 6.8 kHz.

xiii) ARP request reply system is meant for

a) collecting the physical address of the destination in the same network.

b) collecting the physical address of the ultimate destination

c) collecting the logical address of a Router

d) collecting the logical address of the destination.

GROUP – B

(Short Answer Type Questions)

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

2. a) Briefly describe the operation of amplitude shift keying with schematic diagram.
        3

    b) Compare FSK with FM.   2

3. a) When do you apply bit stuffing ?   2

    b) If a bit string 011100111111101 is subjected to bit stuffing, what would be the output string ?   1

    c) What are the factors responsible for contamination of data ?   2

4. a) What are the the error correcting capabilities of CRC-16 ?   1

    b) Which of the ISO layer handles each of the following ?

        i)   Breaking the transmited bit streams into frames

        ii) Routing a packet from one node to another

        iii) Providing synchronization points

        iv) Encryption and decryption.   4

5. What are Bit rate and Baud Rate ? The bit rate of a signal is 3000. If each signal unit carries 6 bits, what is the baud rate ?   5

6. What is the significance of the twisting in twisted-pair cable ? Why is coaxial cable superior to twisted-pair cable ?   2 + 3

7. a) State Shanon's Capacity Formula. What is the significance of the formula ? 2 + 1

    b) Fidelity of FM transmission is much better than AM transmisson. — Why ?   2

GROUP – C

(Long Answer Type Questions)

Answer any *three* questions.   3 × 15 = 45

8. a) What are the basic elements of data communication system ?   3

    b) Discuss in details seven layers protocol suite in data communication system.   8
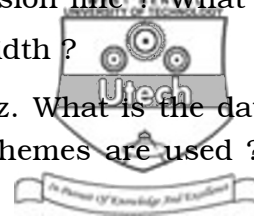
c) What do you mean by bandwidth of a transmission line ? What is the relation between the digital transmission rate and bandwidth ?   2 + 2

9. a) The baseband channel has a bandwidth of 1 MHz. What is the data rate for this channel if any one of the following line coding schemes are used ? Support your answer with diagrams.

    i) NRZ-L

    ii) MLT-3

    iii) MANCHESTER

    iv) NRZ-I.   3 × 4

b) Compare advantages and dis-advantages of BUS and RING topologies. $1\frac{1}{2}$ × 2

10. a) What are the differences between switch and router ?   5

b) What is the application layer of TCP/IP protocol suite ?   5

c) Discuss IP Addresses scheme.   5

11. a) What is the basic Goal of multiplexing ? Explain briefly basic FDM and TDM processes with neat diagrams.   2 + 6

b) Explain PAM/PCM technique with a neat diagram.   4

c) Define bit rate and baud rate. What is the address class of the IP address 224.5.58.1 ?   2 + 1

12. a) Briefly define different frame formats of HDLC protocol.   5

b) What are bit staffing and piggy backing ?   3

c) Selective Repeat ARQ system is more efficient than Go-back-N ARQ system. Explain it. What are the advantages and disadvantages of Fibre optic media ?

                          4 + 3

13. Write short notes on any *five* of the following :   3 × 5

    i) Flow based routing

    ii) Frame Reply

    iii) Packet switching

    iv) Gateway

    v) Priority queuing systems

    vi) Public Key Cryptography

    vii) Baseband and Broadband communications

    viii) TDM and FDM.

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END