B. E. Fifth Semester (Computer Technology) / SoE – 2014-15 Examination

Course Code : CT 1340 / CT 340 **Course Name : Computer Networks**

Time : 3 Hours / 4 Hours] [Max. Marks : 60

Instructions to Candidates :—

(1) All questions are compulsory.

(2) All questions carry marks as indicated.

(3) Assume suitable data wherever necessary.

1. (A1) Draw ISO / OSI reference model and explain the functions of each layer. 6 (CO 1)

(A2) What are the different modes of data transmission ? Explain each with diagram. 2 (CO 1)

(A3) Write real time application of byte stream and message sequence service. 2 (CO 2)

OR

(B1) With the help of real time example Illustrate the concept of communication between layers, protocols and interfaces. 4 (CO 1)

(B2) Identify the layers at which following address works and give the detail description of address :

(i) Port address.

(ii) Physical address. 4 (CO 2)

(B3) Enlist different service primitives. 2 (CO 2)

2. (A1) Differentiate between circuit switching and packet switching. Also draw the timing diagram. 6 (CO 1)

(A2) Give reason, "Wires in Twisted pair cable are twisted with each other". 2 (CO 2)

(A3) Differentiate between baseband and broadband coaxial cable. 2 (CO 1)

OR

(B1) Explain with neat diagram structure of a telephone system. 5 (CO 1)

(B2) State why, "Computer networks are generally packet switched, occasionally circuit switched but rarely message switched". 2 (CO 2)

(B3) Write names of connectors used in Fiber optics, Twisted pair and coaxial cable. 3 (CO 1)

3. (A1) Generate the hamming code for the bit sequence 1101100 using even parity. Assume that while transmission error occurs at 3^{th} bit position, detect and correct the error. 6 (CO 3)

(A2) Write start and end deliminator used in flag byte with byte stuffing and starting and ending flag with bit stuffing method. 2 (CO 3)

(A3) What is piggybacking ? 2 (CO 1)

OR

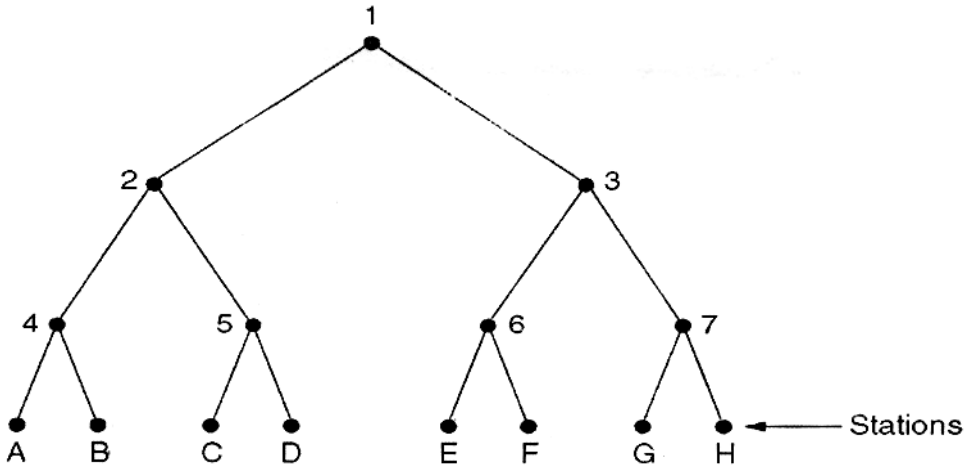
(B1) CRC Codeword received at receiver is 1100100101011. Check whether there are errors in received codeword or not. If CRC divisor is 10101. 6 (CO 3)

(B2) Generate frames for following data using Bit stuffing method :

01101111111111110010 2 (CO 3)

(B3) In sliding window protocol, if 5 bit sequence number is considered then find the range of sequence numbers. 2 (CO 3)

4. (A1) Determine how many slots are required for the following graph using adaptive tree walk protocol and Improved version of Adaptive tree walk protocol. If station A, C, D, E, F and H has data to transmit. Also write the steps of calculation.



6 (CO 3)

(A2) Compare between pure and slotted Aloha. 2 (CO 2)

(A3) Draw frame format of IEEE 802·4. 2 (CO 1)

OR

(B1) Describe key assumption of Dynamic Channel Allocation in LANs and MANs. 5 (CO 2)

(B2) Compare TDM and FDM channel allocation schemes. 3 (CO 2)

(B3) "Limited contention Protocols are good for solving the problem of channel acquisition". Is this statement true or false ? Justify your answer. 2 (CO 1)

5. (A1) John wants to design new routing algorithm, which properties he should keep in mind while designing new routing algorithm ? Differentiate between adaptive and nonadptive routing algorithm. 5 (CO 2)

(A2) Explain count – to – infinity problem of Distance Vector Routing algorithm. 3 (CO 2)

(A3) What is Jitter ? What are its types ? 2 (CO 2)

OR

(B1) How label switching is done in virtual circuit subnet ? Explain by giving suitable example. 4 (CO 2)

(B2) Draw header format of IPv4. Explain its fields. 4 (CO 1)

(B3) How load shading is done in Computer network ? 2 (CO 2)

6. (A1) Describe the process of crash recovery in Computer Network. 4 (CO 1)

(A2) Write note on SMTP. 4 (CO 2)

(A3) What is the need of port address ? What are its types ? 2 (CO 2)

OR

(B1) How connection release is done in computer network ? Describe its two styles by giving suitable diagram. 5 (CO 1)

(B2) Compare FTP and TFTP. 3 (CO 2)

(B3) What is socket address ? 2 (CO 2)