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END TERM EXAMINATION

THIRD SEMESTER [MCA] DECEMBER 2011

Paper Code: MCA 207 ***Subject: Data Communications and Networking***
Paper ID: 44207

Time : 3 Hours ***Maximum Marks : 60***

Note: Attempt five questions. Select one question from each unit. Q. 1 is compulsory.

Q1. (a) What is the difference between Bit rate and Baud rate? Explain with diagram and examples?
(b) Why pure digital signal transmission is not possible?
(c) Double errors can easily be trapped in the CRC method. Explain.
(d) The data link layer and Transport Layer need to implement flow control. Why?
(e) In the distance vector routing, what is two node loop instability?
(f) What is CIDR? Why it is mostly used in routers?
(g) Explain Average data rate and bursty data.
(h) What is digital signature?
(i) What is the difference between circuit switching and packet switching?
(j) Explain TCP connection used in FTP. **(2*10=20)**

Unit-I

Q2. (a) Draw and explain simplified Data Communication Model? **(3)**
(b) In a noise less medium, the spectrum of a channel is between 3MHz. How many signaling levels will be required to achieve maximum data rate of 8mbps? **(3)**
(c) What are the advantages and disadvantages using a twisted pair? What are its two forms? **(4)**

Q3. (a) How does Signal to Noise ratio affects channel capacity? Explain with the help of Shannon capacity formula. **(3)**
(b) Find out the capacity of a telephone line that transmits frequencies from 300Hz with a signal to noise ratio of 35dB. **(3)**
(c) With respect to average signal rate, explain, all polar line coding schemes? **(4)**

Unit-II

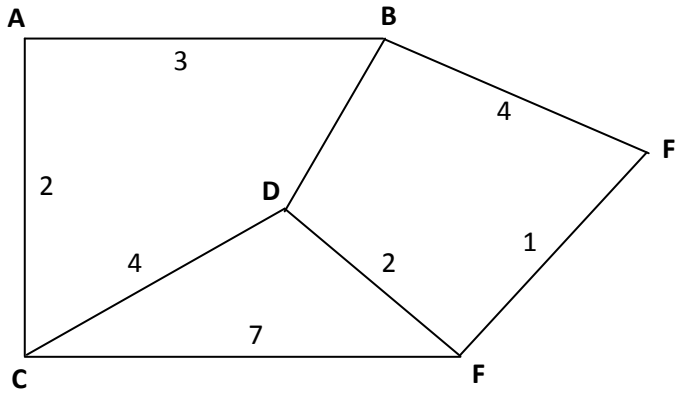
Q4. (a) Suppose that a selective-repeat ARQ is used where W=4. Show, by an example, that a 3 bit sequence number is needed. **(5)**
(b) Explain the operation of CRC error detection method. By means of an example show how: **(5)**
(i) The error detection bits are generated.
(ii) The received frame is checked for transmission errors
Use the generator polynomial x^3+x^2+1.

Q5. (a) When the bandwidth or the maximum distance between two farthest nodes increase, the minimum size of the frame dose not remain appropriate. Why? **(5)**
(b) In Go-Back-N, the sequence numbers should be one more than the size of buffer. Why? **(5)**

P.T.O.

Unit-III

Q6. (a) What are the main difference between a distance vector routing protocol and a link state routing protocol? For the network, shown in the figure given below, create distance vector table for all the nodes. **(6)**



(b) What are the differences between IPV4 and IPV6? **(4)**

Q7. (a) Explain Interdomain and Intradomain routing protocols. **(3)**
(b) What are the different classes of addresses used in IPV4? List their ranges in dotted decimal notation. **(4)**
(c) How the congestion can be prevented and can be removed? **(3)**

Unit-IV

Q8. (a) Describe the following terms that are used in the Domain Name System.
(i) Top-level domain (ii) CNAME(canonical name) (iii) Resolver **(2*3=6)**
(b) How does the TCP implement connection establishment? Explain. **(4)**

Q9. (a) What advantages does TCP have cover UDP? What are the features, which make TCP a reliable protocol? **(4)**
(b) What is zero window advertisement? What is its purpose? **(4)**
(c) What is Symmetric key and asymmetric key cryptography? **(2)**