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TEC – 802

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 0386 **Roll No.**

B.Tech.

(SEM VIII) EVEN SEMESTER THEORY EXAMINATION, 2009-2010

DATA COMMUNICATION NETWORKS

Time : 3 Hours *Total Marks : 100*

Note : *(i) Attempt **ALL** questions.*

*(ii) All questions carry **equal** marks.*

1. Attempt **any two** parts of the following questions : **(2x10=20)**

(a) Explain the function of the each layer in OSI reference model in brief.

(b) What are the various design issues involved in the data link layer ? Discuss the advantages of sliding window protocol over other data link layer protocols ?

(c) Discuss the packet switching principle. How it is different from circuit switching ?

2. Attempt **any four** parts of the following questions : **(4x5=20)**

a) Discuss the medium access control schemes.

(b) Explain that the maximum efficiency of pure ALOHA is 1/(2e).

(c) An 8 bit byte with binary value 11000011 is to be encoded using even parity Hamming code. What is the binary value after encoding ?

(d) How many number of signal level is needed to transmit 128 kbps over noiseless channel with bandwidth of 20 kHz ?

(e) Discuss the operation of HDLC as a bit oriented link control protocol.

(f) Explain the leaky bucket algorithm.

3. Attempt **any four** parts of the following questions : **(4x5=20)**

(a) What is datagram subnet and virtual circuit subnet ? Differentiate between adaptive and non - adaptive routing.

(b) Explain the various causes for congestion in a network.

(c) Describe the purpose of ARP and explain how it works.

(d) Explain stop and wait ARQ error control techniques.

(e) Explain how a data link layer protocol that manage communication and packet framing, between DTE and DCE device in X.25 network.

4. Attempt **any two** parts of the following questions : **(2x10=20)**

(a) Write short notes on the following :

Electronics mail (SMTP), File transfer (FTP), Remote login (Telnet), Web(HTTP).

(b) With the help of suitable example discuss the use of remote bridges. Write a brief note on Bridge forwarding and filtering.

(c) What are the various design issues involved in the network layer ? Explain the different routing algorithms used to route the packets from source machine to the destination machines.

5. Attempt **any two** parts of the following questions : **(2x10=20)**

(a) What is 802.11 medium access controls ? How it works for the reliable data delivery, access control, and security ?

(b) What is IP datagram ? Differentiate between IP datagram format and TCP segment format. How TCP is used to add connection oriented reliable feature to the service of IP ? Explain.

(c) What is ATM architecture ? Where is it used ? Describe various switching fabrics used to the route the cell from a source end point to the destination end point.

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