DipIETE – ET/CS (NEW SCHEME) - Code: DE69 / DC63

Subject: DATA COMMUNICATION & NETWORKS

Time: 3 Hours   **DECEMBER 2011**   Max. Marks: 100

NOTE: There are 9 Questions in all.
- **Please write your Roll No. at the space provided on each page immediately after receiving the Question Paper.**
- **Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.**
- **The answer sheet for the Q.1 will be collected by the invigilator after 45 Minutes of the commencement of the examination.**
- **Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.**
- **Any required data not explicitly given, may be suitably assumed and stated.**

Q.1   **Choose the correct or the best alternative in the following:**   **(2×10)**

a. The presentation layer of OSI model deals with

   (A) Routing algorithms   **(B)** Manages data format information
   (C) Token management   **(D)** All of the above

b. As the data Packet moves from the upper to the lower layers, headers are

   (A) Added   **(B)** Removed
   (C) Rearranged   **(D)** Modified

c. In Manchester encoding, the transition at the middle of the bit is used for_____

   (A) End of frame   **(B)** Synchronization
   (C) Address field   **(D)** None of the above

d. In ADSL, the largest frequency band is used for_____.

   (A) POTS   **(B)** Upstream
   (C) Downstream   **(D)** All of the above

e. Guard bands increase the bandwidth for

   (A) FDM   **(B)** Synchronous TDM
   (C) Asynchronous TDM   **(D)** WDM

f. Which of the following technology is used by LAN?

(A) Point to Point   (B) Broadcast
(C) Line of sight   (D) None of the above.

g. IEEE 802.3 is popularly called as

(A) ARPANET   (B) IBM Token ring
(C) Ethernet   (D) Both (B) and (C)

h. Distance vector routing algorithm can be classified under_____.

(A) non-adaptive   (B) adaptive
(C) static   (D) None of the above

i. _____provides a remote login capability.

(A) SMTP   (B) TELNET
(C) FTP   (D) Ethernet

j. The circuit switching has _____.

(A) Packet transmission delay   (B) Overhead bits in each packet
(C) Call Setup delay   (D) No- dedicated path

Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.

Q.2   a.   Classify the networks based on their size.   **(4)**

     b.   List the uses of computer networks.   **(4)**

     c.   With neat diagram, explain the functions of lower three layers of OSI model.
                        (8)

Q.3   a.   Define Baud rate and bit rate.   **(4)**

     b.   We need to transmit 240kbps over a noiseless channel with a bandwidth of 20
       kHz. How many signal levels do we need   **(4)**

     c.   Compare twisted Pair with co-axial cable with respect to:
       (i) Construction   (ii) Application   **(8)**

Q.4   a.   Given message D = 10011101
            Pattern P = 1001
       Obtain transmitted bit pattern   **(6)**

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   b. With neat diagram, explain briefly about noises in delta modulation. Also discuss transmission, reception and advantages of DM **(10)**

Q.5   a. What is pipelining? How this concept is used in Go-back-N protocol. Discuss its working. Mention advantages and disadvantages of this method over selective repeat. **(10)**

   b. With schematic diagram, explain the working of statistical TDM. What are its advantages? **(6)**

Q.6   a. With event timing diagram compare:
        (i) Circuit switching
        (ii) Virtual Circuit switching
        (iii) Datagram **(8)**

   b. Discuss effect of congestion and mention congestion controls used in Data Networks. **(8)**

Q.7   a. What are different topologies used in LAN? Mention their application. **(6)**

   b. Discuss MAC Frame format. **(6)**

   c. List out wireless LAN applications. **(4)**

Q.8   a. Write about principles of internetworking. **(6)**

   b. Mention the significance of each field with IPv6 Header diagram. **(10)**

Q.9   Write short notes on:

        (i) TCP
        (ii) MIME
        (iii) Flooding **(6+6+4)**