

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)

- 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)