



Roll No.

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Total No. of Pages : 02

Total No. of Questions : 08

M.Tech.(ECE) (2016 Batch) (Sem.-1)
DATA COMMUNICATION NETWORK

Subject Code : MTEC-102

M.Code : 74147

Time : 3 Hrs.

Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.

- Q1. (a) With a suitable diagram, explain OSI network architecture. Compare it with TCP/IP. (10)
(b) What is data communication? What are the possible ways of data transmission? Explain with examples. (10)
- Q2. (a) Describe the limitations of IPv4 protocol. Explain how the limitations are overcome in IPv6. (10)
(b) What is network security? Why it is required? Describe the terms 'confidentiality', 'authentication', 'non-repudiation', and 'integrity'. (10)
- Q3. (a) What is Multiplexing? Explain the working of STDM and FDM with their limitations. (10)
(b) What is a Protocol? Differentiate between character-oriented and bit-oriented protocols. (10)
- Q4. (a) What type of errors can be detected by Parity Check Code? How is it implemented? Explain with a suitable example. (10)
(b) What is ATM Technology? Explain reference model of ATM along with the various services provided by it. (10)
- Q5. (a) How Connection is established and Terminated in TCP using three-way handshaking mechanism? Describe in detail. (10)
(b) How does LAN differs from MAN? Explain briefly about different physical topologies used in LAN. (10)



- Q6. (a) Explain leaky bucket and token bucket algorithm. (10)
- (b) Differentiate between datagram and virtual circuit approaches for packet switching. (10)
- Q7. (a) Discuss briefly the following polar encoding schemes: (10)
- a. NRZ
 - b. RZ
 - c. Manchester
 - d. Differential Manchester
- (b) What is the significance of the twisting in twisted pair cable? What are the different categories of a twisted pair cables and their features? (10)
- Q8. (a) Find the class of each IP address with suitable explanation. (10)
- a. 227.12.14.87
 - b. 193.14.56.22
 - c. 14.23.120.8
 - d. 252.5.15.111
 - e. 134.11.78.56
- (b) Write short notes on the following :
- a. DQDB (5)
 - b. Mobile IP33N operating system (5)

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.