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53 (IT 302) DTCM

2019

**DATA COMMUNICATIONS**

Paper : IT 302

Full Marks : 100

Time : Three hours

**The figures in the margin indicate full marks for the questions.**

Answer **any five** questions.

1. What are the Network Topologies ? Briefly explain all the topologies with diagram. List the advantages and disadvantages of each of the topologies. Mention *one* practical example of all the topologies. 20
2. (a) What are the addresses used in different layers of OSI model ? What are the sizes of these addresses ? What are the uses of these addresses ? Which layer in OSI model deals with processes ? 2+2+4+2=10

Contd.



(b) Define a composite signal. Distinguish between baseband transmission and broadband transmission. A signal attenuation from 200W to 170W. What is the attenuation in decibels?

2+4+4=10

3. Describe with a diagram, the Pulse Code Modulation. What are the advantages of Delta Modulation over Pulse Code Modulation? What is QPSK? Explain.

10+5+5=20

4. (a) What is CDMA? What are the advantages of CDMA? Explain with an example, how CDMA works.

2+3+5=10

(b) Describe with an example, the differences between Circuit-Switched Network and Packet-Switched Network.

10

5. What is Hamming distance? Describe with an example how Hamming Code detects error. Compare and contrast Error Correction and Error Detection. What are

the error detection techniques used? Mention any three sources of error in Data Communication.

2+8+5+2+3=20

6. Write short notes on: (any two)

10×2=20

(a) Unguided Media

(b) ATM

(c) Sliding Window Protocols.

