MGM’s College of Engineering, Nanded

Department of CSE

**Class: SE CSE-I ASSIGNMENT- I Sub: Data Communication**

1. Draw and explain the block diagram of data communication system.
2. Explain different ways of data representation.
3. What is data flow? Explain its different types with example.
4. Explain the categories of the network.
5. Define topology. Explain its different types.
6. Draw the ISO-OSI model and list the functions of each layer.
7. What are the propagation time and the transmission time for a 5-Mbyte message if the bandwidth of the network is 1Mbps? Assume that the distance between the sender and the receiver is 12,000 km and the light travels at 2.4\*108 m m/s.
8. The following to one or more layers of the OSI model:
   * 1. Reliable process-to-process message delivery
     2. Route selection
     3. Defines frames
     4. Provides user services such as e-mail and file transfer
     5. Transmission of bit stream across physical medium
     6. Error correction and retransmission.
9. What are the responsibilities of the data link layer in the Internet model?
10. What are the responsibilities of the network layer in the Internet model?
11. A non-periodic composite signal has a bandwidth of 200 kHz, with a middle frequency of 140 kHz and peak amplitude of 20 V. The two extreme frequencies have amplitude of 0.Draw the frequency domain of the signal.
12. For each of the following four networks, discuss the consequences if a connection fails.
    1. Five devices arranged in a mesh topology
    2. Five devices arranged in a star topology (not counting the hub)
    3. Five devices arranged in a bus topology
    4. Five devices arranged in a ring topology
13. Assume six devices are arranged in a mesh topology. How many cables are needed? How many ports are needed for each device?
14. Explain types of addresses in detail.
15. List and explain various transmission impairments.
16. Explain the characteristics that measure the network performance.
17. Assume that the SNRDB =36 and the channel bandwidth is 2 MHz . Calculate the theoretical channel capacity.

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