

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech Winter 2019 - 20 Examination

Semester: 5
Subject Code: 03105301
Subject Name: DATA COMMUNICATION NETWORKS

Date: 07/12/2019
Time: 10:30 am to 1:00 pm
Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions (All are compulsory) (Each of one mark) (15)

1. PPP stands for _____.
2. A conversation on walkie-talkie is a _____ data flow.
3. A computer network that spans a relatively large geographical area is called _____.
4. A network of networks is known as _____.
5. TCP/IP stands for _____.
6. Which multiplexing technique transmits digital signals?
A. FDM B. TDM C. WDM D. FDM & WDM
7. Which transmission media has the highest transmission speed in a network?
A. coaxial cable B. twisted pair cable C. optical fiber D. electrical cable
8. In which topology, communication between nodes depend on one node
A. Bus Topology B. Star Topology C. Ring Topology D. Mesh Topology
9. Flow control is provided by which layer
A. Application B. Transport C. Network D. Data link
10. A single channel is shared by multiple signals by
A. analog modulation B. digital modulation C. multiplexing D. None of the above
11. What is the number of links to connect n nodes in a mesh topology?
12. The 802.2 standard describes what, that is the upper part of the data link layer.
13. Which encoding technique is implemented in Ethernet?
14. Originally, which organization developed Token Ring network in the year 1970?
15. What is the minimum number of wires needed to send data over serial communication link layer?

Q.2 Answer the following questions. (Attempt any three) (15)

- A) Enlist protocols in application layer and also explain its importance.
- B) Explain synchronous and asynchronous transmission.
- C) What is meant by computer network? Enlist types of networks and explain it with appropriate diagrams.
- D) Define the following:
 1. Network Address
 2. Subnet
 3. Subnet mask
 4. Interface
 5. Internet

- Q.3** A) What is the role of stuffing? Explain bit stuffing and byte stuffing in detail. (07)
B) What is meant by burst error? Explain burst error correction using hamming code. (08)
- OR
- B) Explain Transmission Impairment with its types. (08)
Solve: The power of a signal is 10 mW and the power of the noise is 1 μ W; what are the values of SNR and SNRdB ?
- Q.4** A) Enlist and explain in detail types of multiplexing. (07)
Solve the following: Four data channels (digital), each transmitting at 1 Mbps, use a satellite channel of 1 MHz. Design an appropriate configuration, using FDM.
- OR
- A) Explain the importance of transmission media in a network with its types and appropriate diagram. (07)
B) Establish relationship between data rate and baud rate. Solve: Four data channels (digital), each transmitting at 1 Mbps, use a satellite channel of 1 MHz. Design an appropriate configuration, using FDM. (08)