

Q.2 a. Explain various communication tasks performed by the data communication system.

Answer: Page Number 8, 9 of Text Book

b. Give the header format for the following protocols:

(i) TCP

(ii) UDP

(iii) IPv4

(iv) IPv6

Answer: Page Number 29-31 of Text Book

Q.3 a. How does the Nyquist Bandwidth and Signal-to-noise ratio define the channel capacity? Explain.

Answer: Page Number 78-81 of Text Book

c. Explain the functioning of terrestrial and satellite systems in wireless transmission. Give their respective characteristics.

Answer: Page Number 106-111 of Text Book

Q.4 a. Distinguish the following:

(i) QAM and Amplitude Modulation (AM)

(ii) Asynchronous and Synchronous transmissions

Answer: Page Number 147-151, 167-171 of Text Book

b. Discuss the need of CRC. For $P = 110011$ and $M = 11100011$, calculate CRC code.

Answer: Page Number 174 of Text Book

Q.5 a. Give an example to illustrate the functioning of sliding window protocol.

Answer: Page Number 196-201 of Text Book

b. Explain the working of Statistical Time Division Multiplexing (STDM). Give the respective frame formats and performance metrics.

Answer: Page Number 242-247 of Text Book

c. Explain the features of HDLC in data link control protocols. Explain various modes used in HDLC protocol.

Answer: Page Number 207-209 of Text Book

Q.6 a. Compare datagram packet switching, virtual circuit packet switching and circuit switching. Also discuss their respective applications.

Answer: Page Number 297 of Text Book

b. Explain how backpressure and choke packet is used in congestion control.

Answer: Page Number 362-363 of Text Book

c. Give the comparison of Dijkstra's algorithm and Bellman-Ford algorithm used in routing.

Answer: Page Number 350 of Text Book

- Q.7** a. Explain the architecture of IEEE 802.11 WLAN. Compare 802.11a, 802.11b and 802.11g.

Answer: Page Number 435-438 of Text Book

- b. Explain the functions of a bridge. Give an illustration of three LANs connected by a bridge.

Answer: Page Number 341-342 of Text Book

- c. Explain CSMA persistence and backoff mechanism. Mention various types of persistence methods used in CSMA.

Answer: Page Number 462 of Text Book

- Q.8** a. Compare IPv6 and IPv4.

Answer: Page Number 548-560 of Text Book

- c. Draw the message formats of Internet Control Message Protocol (ICMP).

Answer: Page Number 553 of Text Book

- Q.9** a. Mention any four requirements of multicasting.

Answer: Page Number 578-579 of Text Book

- b. Explain the working of SMTP. Mention any four MIME content types.

Answer: Page Number 712-719 of Text Book

- d. Mention the sequence of operation performed in DNS.

Answer: Page Number 744 of Text Book

Text Book

Data and Computer Communications, Eight Edition (2007), William Stallings, Pearson Education Low Price Edition.