

III B.Tech I Semester Supplementary Examinations, November 2007
DATA COMMUNICATIONS

(Common to Computer Science & Engineering, Information Technology
and Computer Science & Systems Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. What is Data Communication? What are there possible ways of Data transmission and explain with examples. Draw a block diagram of Data communication system and explain its components. [16]

2. Determine the BCS for the following data and CRC generating polynomials?

$$\text{DataG}(x) = x^7 + x^5 + x^4 + x^2 + x_1 + x^0$$
$$\text{Generator}(x) = x^5 + x^4 + x^1 + x^0$$

[16]

3. (a) What is the Difference between selection and polling? And explain.
(b) Explain about Control field on SDLC protocol? [8+8]
4. What are the various types of LAN access control methodologies and explain. [16]
5. (a) Differentiate between datagram and virtual circuit approraches for packet-switching.
(b) Discuss about the operation of TDM bus. [10+6]
6. (a) What is ISDN? Describe the services provided by it.
(b) Discuss the evolution of ISDN. [10+6]
7. (a) Discuss the advantages and disadvantages of frame relay over X.25 networks.
(b) Discuss about frame relay operation. [5+11]
8. (a) Discuss the physical configuration of SONET system. Also give an example of a SONET network.
(b) Explain the four functional layers of SONET standard. [6+10]

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1. Draw the Basic Data Communication Model and explain in detail. [16]
2. What are the various types of Data Communication codes and explain briefly about each code? [16]
3. (a) For a selection. What is transition mode, idle mode and local mode?
(b) What is the difference between a synchronous and an asynchronous protocol? [4+12]
4. (a) Explain CSMA/CD?
(b) Explain TOKEN passing. [16]
5. (a) Differentiate between PAP and CHAP.
(b) Give an overview of different switching methods. [8+8]
6. (a) What is ISDN? Describe the services provided by it.
(b) Discuss the evolution of ISDN. [10+6]
7. (a) Compare the format of an HDLC protocol frame with a frame relay protocol frame. Which fields are missing in the frame relay protocol frame? Which fields are added in the frame relay protocol frame?
(b) Is there a need for a sliding window in frame relay protocol. [8+8]
8. (a) A user needs to send data at 3 Mbps which VT(s) can be used?
(b) How can lower - data - rate STSs be made compatible with higher - data - rate STSs? [8+8]

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1. What are the types of modems? Explain about any one of the modem? What are Data modems? [16]
2. (a) What is Data Communications? Explain briefly Data communication circuit.
(b) Mention some standard organizations for Data Communications? [10+6]
3. Explain Asynchronous protocol in Data Communications. [16]
4. (a) Draw the block diagram of a typical local area network component configuration and explain. What are the typical characteristics of LAN.
(b) Write range of data services, where LAN's are used extensively. [10+6]
5. (a) Differentiate between physical and data link layers of PPP.
(b) Describe about different link monitoring and debugging packets in LCP. [8+8]
6. (a) Explain about control and management planes of ISDN
(b) Explain network layer packet format of ISDN.
(c) List call establishment messages in ISDN. [6+5+5]
7. (a) Discuss the advantages and disadvantages of frame relay over X.25 networks.
(b) Discuss about frame relay operation. [5+11]
8. (a) Discuss how STS s can be multiplexed to get a new STS with a higher data rate.
(b) Explain how overhead and data in an STS-1 are arranged in a matrix configuration. [8+8]

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1. What are the types of modems? Explain about any one of the modem? What are Data modems? [16]
2. Explain about Cyclic redundancy checking with example? [16]
3. (a) What are the three common switching techniques are used with public data net works?
(b) Explain about Value-Added Network and Packet-Switching Network. [8+8]
4. (a) Draw the block diagram of a typical local area network component configuration and explain. What are the typical characteristics of LAN.
(b) Write range of data services, where LAN's are used extensively. [10+6]
5. (a) Differentiate between PAP and CHAP.
(b) Give an overview of different switching methods. [8+8]
6. (a) What is the purpose of Triple X protocols?
(b) How are flow and error control handled by X.25? Are all the layers involved. [6+10]
7. (a) How does a frame get retransmitted in frame relay?
(b) Can two devices connected to the same frame relay network use the same DLCI's? [10+6]
8. Discuss the SONET configuration as a physical carrier for ATM. [16]
