MODULE 1 QUESTIONS

Chap 1

1. What are the characteristics of data communication?
2. Explain the five components of a data communications system
3. Write a short note on data representation
4. Explain the 3 types of data flow
5. Differentiate between half-duplex and full-duplex transmission modes (draw diagrams)
6. Explain performance reliability and security of a network
7. Illustrate the two types of connections (point to point and multipoint)
8. Explain mesh and star topology and the advantages and disadvantages of each (draw diagrams).
9. Explain bus and ring topology and the advantages and disadvantages of each (draw diagrams)
10. Explain why protocols are required and the key elements of a protocol
11. Short note on standards

Chap 2

1.Explain how information is passed from one layer to the next in osi model
2.Explain the functions of physical and data link layer
3. Explain the functions of network and transport layer
4. Explain the functions of session and presentation layer
5.Explain protocols in each layer.
6. Differentiate between port address, logical address and physical address (Ans: end of PDF)
7.Short note on addressing.
8. Differentiate between tcp-ip and osi model (Ans: end of PDF)
9. Short note on tcp/ip(Ans: end of PDF)
10. Explain all layers in OSI Model

Chap 3

1. Explain the three parameters of sine wave
2. Write a short note on Phase
3. Write a short note on time and frequency domains
4. What is bandwidth. Problems on bandwidth
5. Differentiate between baseband and broadband transmission (Ans: end of PDF)
6. Explain the three causes of impairment
7. Problems on finding the powe loss(attenuation) or gain
8. Problems on signal to noise ratio
9. Problems on data rate limits(Nyquist Bit rate and shannons capacity)
10. Note on Performance

Chap 4

1. Explain the characteristics of line coding
2. What is the difference between Bit rate and baud rate
3. All line coding schemes (draw signals)
4. Short note on block coding
5. Scrambling (draw signals -HDB3, B8ZS)
6. Explain steps in PCM (Analog to digital conversion)
7. Explain delta modulation
8. Transmission modes(Explain or differentiate between serial and parallel)

Chap 5

1. Explain the aspects of digital to analog conversion
2. Explain methods for digital to analog conversion
3. Write a short note on ASK and FSK
4. Write a short note on PSK
5. Discuss the various methods for converting analog data to analog signals
6. Write a short note on amplitude Modulation
7. Write a short note on frequency Modulation
8. Write a short note on phase Modulation
9. Which of the digital to analog techniques is susceptible to noise.

Note: questions (3,4 are a part of question 2) , questions (6,7,8 are a part of question 5)

Chap 6

1. What is multiplexing. List the 3 categories of multiplexing
2. What is frequency division multiplexing. Explain the multiplexing and demultiplexing process in FDM with the help of a neat diagram
3. Five channels each with 100KHz bandwidth are to be multiplexed together. What is the minimum bandwidth of the link if there is a need for a guard band of 20KHz between channels to prevent interference? (similar problems)
4. Write a short note on wavelength division multiplexing
5. What is Time division multiplexing
6. Explain time slots and frames in synchronous TDM
7. Problems on time slots and frames
8. Explain interleaving and empty slots in synchronous TDM
9. List and explain the three methods in data rate management
10. Distinguish between multilevel TDM, multiple slot TDM and pulse stuffed TDM
11. Short note on T-1 frames
12. Differentiate between synchronous and statistical TDM . Draw diagrams
13. What is spread spectrum. Explain FHSS
14. Explain direct sequence spread spectrum

Chap 7

1. Write a short note on twisted pair cable .
2. Explain the effect of noise in twisted pair cables
3. Write a short note on coaxial cable
4. Explain propagation modes in optical fiber
5. Describe components of optical fiber cable
6. Explain advantages and disadvantages of optical fiber
7. Discuss the three types of unguided media