

Code No: 07A50505

R07**Set No. 2****III B.Tech I Semester Examinations, November 2010****DATA COMMUNICATION SYSTEMS****Common to Information Technology, Computer Science And Engineering****Time: 3 hours****Max Marks: 80****Answer any FIVE Questions****All Questions carry equal marks**

1. (a) Explain the classifications of USDC radiated power?
(b) Describe the basic concepts and outline the specifications of IS-95. [8+8]
2. (a) Describe twisted pair transmission lines?
(b) Why is single-mode propagation impossible with graded-index optical fibers? Explain? [8+8]
3. (a) Distinguish between error correction and error detection by retransmission?
(b) Describe the basic functions of a digital service unit? [8+8]
4. (a) Describe the differences between magnitude-only PCM codes and sign-magnitude PCM codes.
(b) List and explain the various frame synchronization techniques? [8+8]
5. (a) Where in a telephone system is the local loop?
(b) Describe nonlinear, transmittance and coupling crosstalk? [8+8]
6. (a) Explain the poll/select line discipline.
(b) How do binary synchronous communications achieve transparency? [8+8]
7. (a) What are data communication standards and why they are needed?
(b) Determine the information capacity in bps for a circuit with a 100-KHz bandwidth and a signal-to-noise ratio of 40dB(10,000). [8+8]
8. Describe the satellite orbits and orbital patterns? [16]

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1. Discuss the features two asynchronous data link protocols XMODEM and YMODEM? [16]
2. (a) What is Topology? Explain briefly about network Topologies.
(b) Explain the probability of error and bit error rate? [8+8]
3. (a) Explain the features and multiplexing of SONET?
(b) Describe the differential PCM? [8+8]
4. (a) Explain the different types of metallic transmission lines?
(b) State snell's law for refraction and outline its significance for optical fiber cables. [8+8]
5. (a) What is the difference between a station busy signal and an equipment busy signal?
(b) What is the reference frequency for attenuation distortion? [8+8]
6. (a) Discuss the features of modem equalizers?
(b) Explain the ITU-T modem recommendations? [8+8]
7. (a) Outline the advantages and disadvantages of PCSS over terrestrial cellular telephone systems?
(b) Briefly describe the E-TDMA scheme? [8+8]
8. (a) Explain the sky wave propagation?
(b) Determine the reflection coefficient for a reflected power of 0.001W and an incident power of 0.008W. [8+8]

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1. (a) Explain briefly the FDMA?
(b) Outline and describe the services offered by GSM? [8+8]
2. (a) Explain the difference between error detection and error correction?
(b) Describe the function of modem equalizers. [8+8]
3. Briefly describe C-message noise weighting and state its significance? [16]
4. (a) Explain the metallic transmission line equivalent circuit.
(b) What are coupling losses? Explain the reasons for their occurrence? [8+8]
5. Explain the synchronous data link protocol? [16]
6. (a) What are the differences between servers and clients on a data communications network?
(b) Describe the relationship between bit rate, bandwidth, and baud for 16-PSK. [8+8]
7. (a) Describe rays and wavefronts and the relationship between them?
(b) Determine the power density for a radiated power of 1000W at a distance 20 km from an isotropic antenna. [8+8]
8. (a) Briefly explain the process of digital companding?
(b) Explain the frame format and operation for the T1 digital carrier system. [8+8]

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1. Explain the different data communication codes? [16]
2. What is sliding window protocol? Explain the sliding window flow control? [16]
3. (a) Explain operational features of CDMA?
(b) Explain the USDC digital video channel? [8+8]
4. (a) Determine the frequency for electromagnetic wave in free space with 1 m wavelength.
(b) Describe the characteristics of light detectors. [8+8]
5. (a) Explain M-ary Encoding?
(b) Briefly describe the Cisco three-layer protocol model? [8+8]
6. (a) Define and state the causes of foldover distortion?
(b) Describe the basic T carrier formats? [8+8]
7. (a) Contrast the advantages and disadvantages of microwave radio communications?
(b) For a frequency of 2 GHz and a distance of 40km, determine the free-space path loss. [8+8]
8. (a) What is the reference frequency for envelope delay distortion?
(b) What is the purpose of call progress tones and signals? [8+8]
