

Code No: 07A50505

**R07****Set No. 2****III B.Tech I Semester Examinations, May 2011****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**

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1. What is sliding window protocol? Explain the sliding window flow control? [16]
2. Explain the optical fiber communications system with a neat block diagram? [16]
3. (a) Describe CDMA?  
(b) Outline the CDMA frequency and channel allocation for cellular telephone? [8+8]
4. (a) What are the advantages and disadvantages of geostationary satellite?  
(b) Describe a satellite footprint? [8+8]
5. (a) Enumerate difference between asynchronous and synchronous modems?  
(b) Explain longitudinal redundancy checking? [8+8]
6. (a) Where in a telephone system is the local loop?  
(b) Describe nonlinear, transmittance and coupling crosstalk? [8+8]
7. (a) What are the differences between peer-to-peer client/server networks and dedicated client/server networks?  
(b) Describe the relationship between bit rate, bandwidth, and baud for 16-QAM.  
(c) Briefly describe the TCP/IP protocol model? [8+4+4]
8. (a) Explain the difference between linear and nonlinear PCM codes.  
(b) Describe the North American Digital Hierarchy. [8+8]

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**R07****Set No. 4****III B.Tech I Semester Examinations, May 2011****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**

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1. (a) Describe the differences between cable modems and standard voice-band modems?  
(b) Explain the data communication circuit with a diagram? [8+8]
2. (a) Describe synchronous data link protocols?  
(b) Describe asynchronous data link protocols? [8+8]
3. (a) Describe twin-lead transmission lines?  
(b) List and briefly explain the losses associated with optical fibers. [8+8]
4. (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]
5. (a) Explain the Kepler's laws?  
(b) Explain the satellite look angles? [8+8]
6. (a) Explain quantization noise?  
(b) Describe the synchronous optical SONET network. [8+8]
7. (a) Describe a cellular geographic serving area?  
(b) Explain the types of handoff? [8+8]
8. (a) Name and briefly describe the differences between the two kinds of data communication standards?  
(b) Describe a constellation diagram and explain for what it is used? [8+8]

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**R07****Set No. 1**

III B.Tech I Semester Examinations, May 2011

DATA COMMUNICATION SYSTEMS

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Time: 3 hours

Max Marks: 80

Answer any FIVE Questions

All Questions carry equal marks

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1. (a) Describe twisted pair transmission lines?  
(b) Why is single-mode propagation impossible with graded-index optical fibers? Explain? [8+8]
2. (a) What is Topology? Explain briefly about network Topologies.  
(b) Explain the probability of error and bit error rate? [16]
3. Explain what loading coils and bridge taps are and when they can be detrimental to the performance of a telephone circuit? [16]
4. (a) Discuss the features of modem equalizers?  
(b) Explain the ITU-T modem recommendations? [8+8]
5. (a) List and explain the functions of data link protocol?  
(b) Briefly describe the stop-and-wait method of flow control? [8+8]
6. (a) Describe digital cellular telephone?  
(b) List the advantages and disadvantages of PCSS? [8+8]
7. (a) Define and explain the pulse code modulation?  
(b) A PCM-TDM system multiplexes 20 voice-band channels . Each sample is encoded into seven bits, and a framing bit is added to each frame. The sampling rate is 10,000 samples per second. Determine maximum analog input frequency and line speed in bps. [8+8]
8. (a) Describe wave attenuation and absorption and the relationship between them.  
(b) Determine the power density for a radiated power of 1000W at a distance 30 km from the antenna. [8+8]

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**R07****Set No. 3**

III B.Tech I Semester Examinations, May 2011

DATA COMMUNICATION SYSTEMS

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Time: 3 hours

Max Marks: 80

Answer any FIVE Questions

All Questions carry equal marks

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1. (a) Explain the CRC-16 generating circuit? With example.  
(b) List and explain the basic blocks of a voice-band modem? [8+8]
2. Discuss the features two asynchronous data link protocols XMODEM and YMODEM? [16]
3. (a) Explain flat-top and natural sampling?  
(b) Explain the SONET standard? [8+8]
4. (a) Explain the Data link layer, Network layer and Transport layer of OSI architecture model functionalities.  
(b) What is digital modulation? Explain the types of digital modulation? [8+8]
5. (a) Describe IS-136 and explain its relationship to IS-54?  
(b) List the advantages and disadvantages of a digital cellular system? [8+8]
6. (a) What is the difference between a TLP and a DLP?  
(b) Explain how caller ID operates? [8+8]
7. Describe the satellite orbits and orbital patterns? [16]
8. (a) Explain how waves are propagated down a metallic transmission line.  
(b) What is the relationship between bandwidth and information capacity.  
(c) For a glass( $n = 1.5$ )/quartz( $n=1.38$ ) interface and an angle of incidence of 35 degrees, determine the acceptance angle for the fiber. [8+4+4]

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