

Code No: C9305

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

M.Tech I Semester Examinations March/April-2011

ADVANCED DATA COMMUNICATIONS

(SYSTEMS &amp; SIGNAL PROCESSING)

Time: 3hours

Max.Marks:60

**Answer any five questions**  
**All questions carry equal marks**

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1. a) Explain the four techniques of digital-to-Analog modulation namely ASK, FSK, PSK and QAM.  
 b) An analog signal carries four bits in each signal element. If 1000 signal elements are sent per second, find the band rate and bit rate. [12]
2. a) What is the difference between a central and a secondary hub? What is the difference between a passive and active hub? How do these categories interrelate?  
 b) For each type of network topology, discuss the implication of a single cable fault. [12]
3. a) Explain the two modes for transmitting binary data across a link.  
 b) What are the functions of a DTE? What are the functions of a DCE? Give an example for each. [12]
4. a) List the steps involved in creating a checksum.  
 b) Find the checksum for the following bit sequence. Assume a 16-bit segment size.  
 100100111001 0011  
 10011 00001001101 [12]
5. With appropriate examples, explain the two main methods of flow control  
 a) Stop-and-wait                      b) sliding window [12]
6. a) Explain Time-Division multiplexing, with and without Time-slot interchange.  
 b) Compare the two approaches to packet-switching namely datagram and virtual circuit. [12]
7. Explain in Detail CSMA/CD. [12]
8. Write short notes on:  
 a) Carrier recovery  
 b) Message switching. [12]

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