R09

Code No: C4508, C9305

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.TECH I SEMESTER EXAMINATIONS, APRIL/MAY-2012
ADVANCED DATA COMMUNICATIONS
(SYSTEM & SIGNAL PROCESSING)

Time: 3hours **Max.Marks:60**

Answer any five questions
All questions carry equal marks

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1.a) Describe the relationship between bit rate, bandwidth, and baud rate for M-ary PSK and M-ary QAM systems. Derive the suitable expressions.
b) With suitable block diagram, explain how clock recovery is done from the received signal in digital communication systems.

2.a) Discuss about different interface standards used in data communications with suitable electrical and mechanical specifications.
b) With suitable block diagram(s), explain how the information is transferred between Data Terminal Equipment (DTE) and (Data Communication Equipment (DCE).

3.a) What are the categories of Networks? Discuss about them.
b) What are the line configurations and transmission modes used in data communications? Describe them briefly.

4.a) What are the different error detection methods used in data communications?
b) Describe how vertical redundancy checking accomplishes error detection.
c) Determine the block check character (BCC) for the following data and cyclic redundancy check (CRC) – generating polynomials: $G(x) = x^7 + x^4 + x^2 + 1$; and $P(x) = x^5 + x^4 + x + 1$.

5.a) Discuss about Synchronous Data Link Communications (SDLC) protocol in detail.
b) Determine the bit pattern for the control field of a supervisory frame format sent from a secondary station to the primary for the following conditions: the secondary is ready to receive, it is the final frame, and the secondary station is confirming frames 3, 4, and 5.

6.a) List out the similarities/differences between circuit switching, packet switching, and message switching.
b) Write the following briefly: (i) PSTN (ii) Synchronous TDM

7.a) Explain the difference between the multiplexing and multiple access with suitable examples.
b) Give the important features of Polling and Token passing.

8. List out different multiple access techniques and discuss them in detail.

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