Code: 9D06104

M.Tech I Semester Regular & Supplementary Examinations February 2016

ADVANCED DATA COMMUNICATIONS

(Digital Systems and Computer Electronics)

(For students admitted in 2011, 2012, 2013, 2014 & 2015 only)

Time: 3 hours Max Marks: 60

Answer any FIVE questions

All questions carry equal marks

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1 (a) Determine the signal to noise ratio required according to the Shannon limit to transmit a multiplexed telephone signal at 8.448 Mbps through a channel of 2.048 MHz bandwidth. If this 8.448 Mbps signal needs to be transmitted through 2.048 MHz band width channel using M-ary encoding. Calculate 'M' and number of bits to be encoded as a single symbol.

(b) For a BPSK modulator with a carrier frequency of 70 MHz and input bits rate of 10 Mbps, determine the maximum and minimum upper and lower side frequencies and draw the output spectrum. Determine Nyquist bandwidth and calculate the baud.

2 The protocol and standards are necessary for data communication and networks. Why? Define the key elements of protocols and also write down the various standard organizations and regulatory agencies and its functions.

3 Explain about the specifications and implementations of the EIA – 232 interface.

4 Write notes on the followings:

(a) Forward error correction.

(b) Error detection using Hamming code.

5 Name the types of HDLC frames and give a description of each.

6 Compare space division switches and time division switches.

7 Discuss about Carrier sense multiple access and collision detection with example.

8 Explain the special features, functions and applications of FDMA.

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