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B.Tech. Degree III Semester Examination November 2016

CS 15 -1306 DATA AND COMPUTER COMMUNICATION (2015 Scheme)

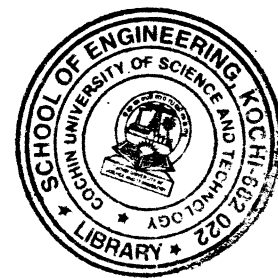
Time : 3 Hours

Maximum Marks : 60

PART A (Answer *ALL* questions)

(10 × 2 = 20)

- I. (a) A line has a Signal to Noise Ratio of 1000 and a bandwidth of 4000khz. What is the maximum data rate supported by the line.
- (b) A signal travels from a point A to point B. At point A, the signal power is 100 watts, at point B, the power is 90 watts. What is the attenuation in DB.
- (c) Calculate baudrate for the given bit rate and bit combinations.
 - (i) 2000 bps, dibit.
 - (ii) 6000 bps, quadbit.
- (d) Explain the concept of spread spectrum.
- (e) List the fundamental difference between packet switching and circuit switching.
- (f) Give the significance of Huffman coding.
- (g) List the steps involved in creating checksum.
- (h) Compress the text BABACBBA using LZW algorithm.
- (i) How does a router differ from a bridge?
- (j) What are the properties of Ethernet?



PART B

(4 × 10 = 40)

- II. Explain the OSI reference model in detail, with a neat sketch. (10)
- OR**
- III. (a) Encode the data 01010011 by NRZ-L, AMI, Manchester & Differential Manchester techniques. (6)
- (b) Explain the pulse code modulation with necessary diagram. (4)
- IV. Explain the working, construction and different transmission modes of optical fibre cable, with necessary diagrams. (10)
- OR**
- V. (a) Explain Synchronous and Asynchronous TDM in detail. (6)
- (b) Explain the term MODEM with various modem standards. (4)
- VI. A series of 8 bit message block 11100110 transmitted across a data link using a CRC for error detection. A generator polynomial of 11001 is to be used. Illustrate the following (10)
 - (i) CRC generation process.
 - (ii) CRC checking process.
- OR**
- VII. Describe various ARQ mechanisms in detail with the help of figures. (10)
- VIII. (a) Explain the following terms. (6)
 - (i) 100 Base T (ii) 100 Base F (iii) 1000 Base T
- (b) Explain about the gateway. (4)
- OR**
- IX. (a) Describe in detail, how a connection is established between Bluetooth devices. (4)
- (b) Discuss the merits and demerits of different network topologies. (6)