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B.Tech. Degree III Semester Supplementary Examination
April 2018

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

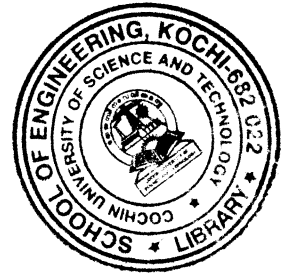
Time : 3 Hours

Maximum Marks : 60

PART A
(Answer *ALL* questions)

(10 × 2 = 20)

- I. (a) A periodic composite signal contains frequencies from 20 to 30 KHz, each with an amplitude of 8v. Draw the frequency spectrum.
- (b) Match the following to one or more layers of the OSI model.
- Transmission of bit stream across physical medium.
 - Framing.
 - Reliable process to process message delivery.
 - Provide user services such as email and file transfer.
- (c) Explain different steps of pulse code modulation.
- (d) How does sky propagation differ from LOS propagation?
- (e) List four major components and their functions of packet switch.
- (f) What is LATA? What are intra LATA and inter LATA services?
- (g) Calculate the hamming distance for each of the following code words.
- d(10000,01000)
 - d(10101,10010)
 - d(1111,1111)
 - d(1101,0010)
- (h) Compress the text WABBAWABBA using LZW algorithm.
- (i) How does a repeater differ from an amplifier?
- (j) Draw the frame format of 802.3.



PART B

(4 × 10 = 40)

- II. (a) The signal to noise ratio is 3162 for a regular telephone line. Calculate the channel capacity. (3)
- (b) A signal travels from point A to point B. At point A, the signal power is 200 W, at point B, the power is 170 W. What is the attenuation in decibel? (3)
- (c) How do attenuation, distortion and noise impair a signal? (4)
- OR**
- III. Encode the data 00110011 by NRZ-L, NRZ_I, AMI, Manchester and differential Manchester techniques. (10)

(P.T.O.)

- IV. (a) Explain the multiplexing process in detail. (5)
 (b) List the two spread spectrum techniques in detail. (5)

OR

- V. Draw and explain virtual circuit network in detail. (10)
- VI. A series of 8 bit message block 1101011011 transmitted across a data link using a CRC for error detection. A generator polynomial of 10011 is to be used. (10)
 (i) Show the generation of the codeword at the sender site.
 (ii) Show the checking of the code word at the receiver site (assume no error).

OR

- VII. (a) With the help of diagram explain Go back N ARQ and Selective Repeat ARQ. (5)
 (b) A sender needs to send the four data items 5, 4, 9 and 6. Answer the following (5)
 (i) Find the checksum at the sender site.
 (ii) Find the checksum at the receiver site if there is no error.

- VIII. (a) With the help of merits and demerits explain ring and star topologies. (5)
 (b) Discuss about bridge and router. (5)

OR

- IX. (a) What are the categories of standard Ethernet? (5)
 (b) Compare Adhoc and infrastructure networks. (5)
