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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Fifth Semester, B.E. - Information Science and Engineering

Semester End Examination; Dec. - 2015

Communication Networks

Time: 3 hrs *Max. Marks: 100*

***Note**: Answer **FIVE** full questions, selecting at least **ONE** full question from each unit.*

UNIT - I

1 a. Explain mesh and star topology with their advantages and disadvantages. 8

b. Math the following to one or more layers of the OSI model, 5

i) Flow control

ii) Route determination

iii) Provides access for the end user

iv) Establishes, manages and terminates sessions

v) Ensure reliable transmission of data.

c. With neat diagram, explain TCP / IP protocol suite. 7

2 a. Explain three types of transmission Impairment. 6

b. The attenuation of a signal is - 12 dB. What is the final signal power if it was originally 4 W? 6

c. A signal with 300 mW power passes through 10 devices, each with an average noise of 3 μw. What is the SNR? What is the SNR_{dB}? 8

UNIT - II

3 a. Draw the graph of Manchester and differential Manchester scheme using each of the following data, 8

i) 00110011 ii) 01010101

b. With example, explain B8ZS and HDB3 scrambling techniques. 6

c. Describe the three ways of serial transmission. 6

4 a. Explain BASK and BFSK with implementation. 10

b. Explain twisted pair cable and coaxial cable with applications. 10

UNIT - III

5 a. With a neat diagram, explain the encoder and decoder for simple parity check code. 8

b. Given the data word 1001 and the divisor 1011, 8

i) Show the generation of codeword at the sender site (CRC encoding using polynomials).

ii) Show the checking of codeword at the receiver site (assume no errors).

Contd…2

c. Which of the following generator g(x) values generates that a single - bit error is caught in cyclic codes? For each case, which is the error that cannot be caught? 4

i) $x + 1$ ii) x^3

6 a. Explain character-oriented and Bit – oriented protocols. 8

b. Write and analyse sender site and receiver site algorithm for stop - and - wait ARQ Protocol. 12

UNIT - IV

7 a. Explain the control field format for the different frame types of HDLC frame. 10

b. List the services provided by point - to - point protocol. Describe the PPP frame format. 10

8 a. Explain how collision are avoided through the use of CSMA/CA. 6

b. Explain the three popular controlled - access methods. 8

c. Describe the format of the 802.3 MAC frame. 6

UNIT - V

9 a. Explain hidden and exposed station problem with solution. 10

b. Explain the two types of networks in Bluetooth. 5

c. Describe the radio layer of Bluetooth. 5

10a. Explain bus and star backbone architectures. 10

b. Explain briefly virtual LAN's. 10

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