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

(An Autonomous Institution under VTU, Belgaum)

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

Semester End Examination; Dec. - 2014

Computer Networks - I

Time: 3 hrs *Max. Marks: 100*

***Note**: i) Answer any **FIVE** full questions selecting at least **TWO** full questions from each part.*
ii) Assume suitable missing data if any.

PART - A

1 a. Explain the characteristics of the layers in OSI model. 10

b. List and explain the various components of communication systems. 5

c. With a neat diagram, explain the key elements of the Internet? 5

2 a. A digital signal has a bit interval of 40 m sec. What is the bit rate? 4

b. We want to digitize the human voice. What is the bit rate assuming eight bits per samples? 4

c. Define composite signals. 2

d. Explain the four different categories of Noise. Given a Room Temperature of $17^{\circ}C/290K$, Find the Thermal noise power density. 10

3 a. Explain with an example, how Manchester and differential Manchester signal encoding scheme works? 12

b. Explain the working of pulse code Modulation. 8

4 a. List some of the disadvantages of Twisted pair cable. Explain the different characteristics that distinguish optical fiber from twisted pair of co-axial cable. 10

b. Explain the Unguided media. 10

PART - B

5 a. Explain the significance of Error detection and correction Algorithms. With a neat diagram explain CRC generator and checker. 12

b. With an example, Explain the working of Hamming codes. 8

6 a. Name and discuss briefly the bits in HDLC control field. 10

b. With a neat flow diagram, explain the working of stop – and – wait flow control process. 10

7 a. Describe the format of the MAC frame in CSMA/CD. 10

b. Differentiate and explain the differences between Giga bit and Fast Ethernet. 10

8. Write short note on: 20

i) IEEE 802.11 Frame Format

ii) Blue tooth Technology.

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