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P.E.S. College of Engineering, Mandya - 571 401
(An Autonomous Institution affiliated to VTU, Belagavi)
Fifth Semester, B.E. - Information Science and Engineering
Semester End Examination; Dec - 2017/Jan - 2018
Communication Networks - I

Time: 3 hrs   *Max. Marks: 100*

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

UNIT - I

1 a.	What is topology? Explain different categories of topology.	10
b.	With the help of a diagram, describe the functionalities of each layer of model in TCP/IP protocol.	10
2 a.	Explain Baseband Transmission.	8
b.	What are the three causes of transmission impairment?	6
c.	What are the propagation time and the transmission time for a 2.5 kB message, if the (bandwidth) of the network is 1 Gbps? Assume that the distance between the sender and the receiver is 12,000 km and the light travels at 2.4×10^8 m/s.	6

UNIT - II

3 a.	Sketch the signal waveform, when 01010101 is in transmit using following line coding schemes : i) NRZ-L ii) NRZ-I iii) Manchester scheme iv) Differential Manchester scheme.	8
b.	Explain different transmission modes.	8
c.	Distinguish between a signal element and a data element.	4
4 a.	What are the different types of mechanism for digital to analog conversion? Explain briefly.	10
b.	What are the different propagation modes in fiber-optic cable?	5
c.	How unguided signals travel from the source to destination?	5

UNIT - III

5 a.	What is Hamming distance? How to find Hamming distance between two numbers? Find the Hamming distance between the pair (10101, 11110).	6
b.	With a neat diagram, explain CRC encoder and decoder.	12
c.	What is the polynomial representation of 101110?	2
6 a.	What is framing? Describe two approaches for variable size framing.	10
b.	With a neat diagram, design stop-and-wait ARQ protocol.	10

UNIT - IV

7 a.	Write the frame formats for HDLC frame and explain each field.	7
b.	Explain Transitional phases in point to point protocol.	8
c.	Describe Multilink PPP.	5
8 a.	What is a random access protocol? Write procedure for pure ALOHA.	10
b.	Explain the switched Ethernet and Full-duplex Ethernet.	6
c.	Describe about Gigabit Ethernet.	4

UNIT - V

9 a.	With a neat diagram, explain the architecture of IEEE 802.11.	6
b.	What is Bluetooth? Explain two types of Bluetooth networks.	8
c.	Explain L2CAP.	6
10 a.	Explain two commonly used Backbone architecture.	10
b.	How stations are grouped into different VLANs?	6
c.	What are the advantages of VLANS?	4

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