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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 - 2019
Data Communication

Time: 3 hrs   Max. Marks: 100

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

UNIT - I

1 a. Define network topology. List any three merits of mesh topology and any two demerits over other network topologies. **6**

b. Discuss the usage of the following protocols:

i) ICMP   ii) RARP   iii) SCTP   iv) IP **8**

c. The period of a signal is 100 ms, what is its frequency in kilo hertz? Also compare time and frequency domains. **6**

2 a. List and exemplify the different types of causes for transmission impairment. **10**

b. With a neat diagram, discuss the major components of data communications system. **10**

UNIT - II

3 a. Discuss the following Line coding schemes:

i) Unipolar Schemes

ii) Manchester

iii) Psemtoternary **12**

b. Briefly discuss the usage of the following transmission media:

i) Twisted pair cable   ii) Microwaves **8**

4 a. With a diagram, explain the concept of block coding. Also explain 4B/5B with NRZ-I line coding scheme. **10**

b. Discuss the components of PCM encoder. **6**

c. List any four Merits of Fiber-Optic cable. **4**

UNIT - III

5 a. With necessary diagrams, differentiate between single-bit and burst error. **6**

b. Discuss briefly, CRC error detection. **6**

c. Compare byte stuffing and unstuffing. **8**

6 a. What is hamming distance? Briefly discuss the minimum hamming distance for error detection. **8**

b. Differentiates between connectionless and connection- oriented protocols. Also explain Stop-and-Wait protocol. **12**

UNIT - IV

7 a. List the services provided by PPP. Also explain with a diagram, PPP frame format. 10

  b. With a diagram, explain briefly taxonomy of Multiple-access protocols. 10

8 a. Discuss the following:

   i) Transition phases in PPP 10

   ii) Multiplexing

  b. Discuss the following:

   i) ALOHA

   ii) Token passing 10

   iii) Polling

UNIT - V

9 a. Discuss the following with respect IEE 802.11:

   i) Basic Service Sets (BSS)   ii) Extended Service Sets (ESS) 8

  b. Discuss the importance of the following:

   i) Hubs   ii) Routers   iii) Virtual LANs 12

10 a. With a diagram, explain MAC Layers in IEEE 802.11 standards. 10

  b. What is Bluetooth? Discuss the characteristics of Bluetooth and its architecture. 10

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