Premier University
Department of Computer Science & Engineering
6th Semester Final Exam, December 2018
Course Title: Data Communication
Course Code: CSE - 364

Time: 3 Hours **Marks: 50**

Answer any five (5) questions from following seven (7)

Q.1 **a.** Categorize the four basic topologies in terms of line configuration. **03**

b. Explain the responsibilities of Data Link layer, Network layer and Transport layer in OSI model. **05**

c. Describe the method how data flows between two devices in communication system. **02**

Q.2 **a.** Design a simple parity checker. **02**

b. What is protocol? Write down all the protocols used in TCP/IP. **04**

c. Define CRC. Given G(x) = 10110111 and P(x) = 110011. Check the error of given message using CRC technique. **04**

Q.3 **a.** Describe pulse code modulation technique. **05**

b. Differentiate between serial and parallel transmission with advantages. **03**

c. What is the theoretical capacity of a channel in each of the following cases? **02**

i) Bandwidth : 20kHz SNR_{db}=40.

ii) Bandwidth : 1 MHz SNR_{db}=20.

Q.4 **a.** Describe five line coding schemes of digital to digital conversion with examples. **05**

b. Define scrambling techniques and give its purpose. **03**

c. What are the propagation time and the transmission time for 5 Mbyte message if the bandwidth of the network is 1Mbps? Assume that the distance between the sender and the receiver is 12000 km and the light travels at 2.4 $\times 10^8$ ms^{-1}. **02**

Q.5 **a.** Write down the characteristics of following digital to analog conversion techniques : **05**

i) ASK

ii) PSK

iii) FSK

Which one is more susceptible to noise? Defend your answer.

b. Depict the advantages of optical fiber over twisted pair and coaxial cable. **03**

c. "Mathematically FM and PM are same with one difference"- Justify the answer. **02**