POKHARA UNIVERSITY

Level: Bachelor	Semester – Spring	Year: 2020
Program: BE		Full Marks: 70
Course: Data Communication		Pass Marks: 31.5
		Time: **2** hrs.

Candidates are required to answer in their own words as far as practicable. The figures in the margin indicate full marks.

Group - A: Attempt all questions (5*10=50)

Q. N. 1 Explain with the help of detailed block diagram, how a message is sent from the sender to the receiver in data communication. Compare and Contrast serial and parallel communication. 10

OR

Why is optical fiber considered advantageous over other copper medias? Explain. Also, explain about the construction of optical fiber. 10

Q. N. 2 What is the importance of using mathematical tool like Fourier series and Fourier transforms in engineering? Obtain the Fourier transform for e^{-at} u(t) with amplitude and phase spectrum. 10

Q. N. 3 A bit stream 11010101 is transmitted using standard CRC method. The generator polynomial is x^3+1.Show the actual bit transmitted. Suppose, the third bit from the left is inverted during transmission. Show that this error is detected at the receiver's end. 10

Q. N. 4 Encode 1100110 using Polar NRZ, Unipolar NRZ, Manchester and AMI technique. Also encode 10000000000110 using HDB3 and B8ZS scrambling techniques. 10

Q. N. 5 Why do we need multiplexing? Explain different multiplexing techniques with its relevant figures. Also explain about E1 telephony in brief. 10

Group – B (2*10=20)

Q. N.6a How modulation helps to reduce the size of antenna, illustrate in brief. Show how QPSK modulation works in the transmitter and receiver's end. 10

6b Explain about CSMA/CD technique with its flowchart. Discuss about Go Back N ARQ and Selective Repeat ARQ in brief. 10

Best of Luck!