Department of Computer Systems Engineering
University of Engineering & Technology
Peshawar, PAKISTAN

Subject: Signal and Systems (4th Semester)

Exam: Mid Term (Spring 2021)

Max Marks: 20

Attempt All Questions. **Time allowed : by parts**

Registration No._____

Question 1:

a) What are even and odd signals? How can even and odd signals be identified graphically? Can a signal be both even and odd at the same time? Can a signal be neither even nor odd? (CLO1) **(2 Marks)**

b) Find the Even and Odd parts of the continuous-time signal x(t) and discrete-time signal x[n] given in Figure-1 below? (CLO1) **(4 Marks)**

S = Sum of the digits at unit place & tens place of your registration number (Unit+Tens)

D = Difference of the digits at unit place & tens place of your registration number (Unit-Tens)

Note: Figure is not to scale, as the values are based on your registration numbers

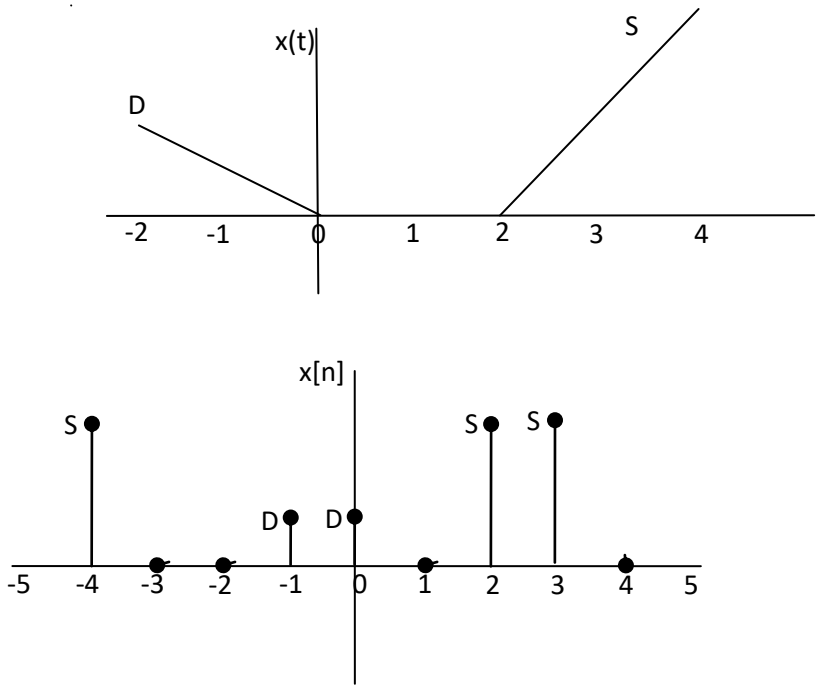

Figure-1

Question 2:

a) If we have to perform multiple transformations on independent variable such as x(-at+b); (i.e. reversal, scaling and shifting), what is the correct **order** of performing these transformations? What happens if we don't follow this order? (CLO1) **(2 Marks)**

b) For the signal x(t) shown in Figure 2, sketch and label the graph of, (CLO1) **(2 Marks)**

a) x(-t+4)
b) x(-2t - 3)

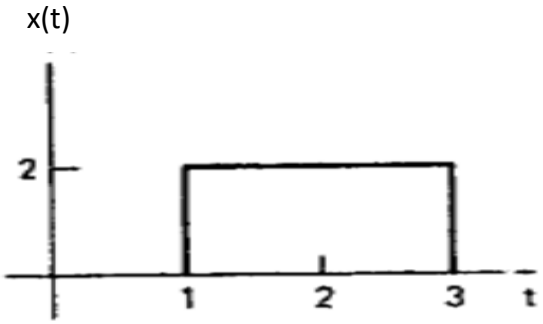

Figure 2