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 : 2 hours**

Question 2:

a) What is impulse signal in discrete-time and continuous-time? What is impulse the response of a system? How the impulse signal and impulse response of system help in the analysis of LTI Systems? (CLO2) **(3 Marks)**

b) Use the convolution integral method to find the response y(t) when the input signal x(t) is passed through the LTI system with impulse response h(t)? (CLO1) **(5 Marks)**

S = Smaller among the digits at units and tens places of your registration number

B = Bigger among the digits at units and tens places of your registration number

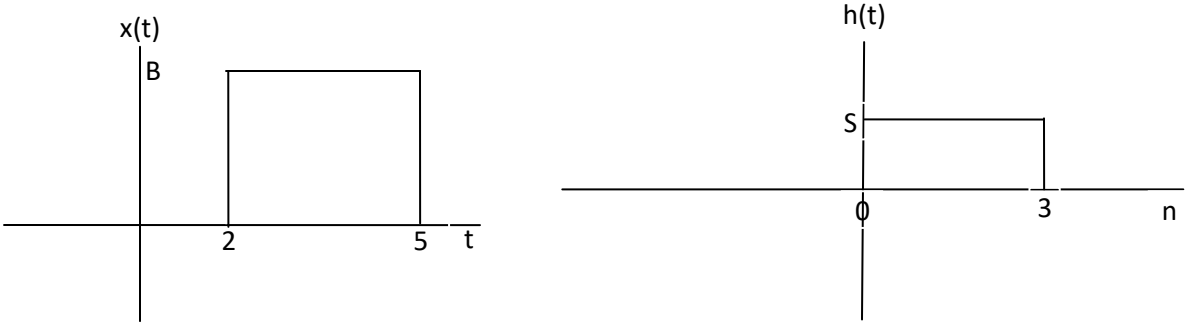

Figure-3

Is system h(t) a system with memory or without memory? Explain why?

Is it a causal or non-causal system? Explain why?

c) For the following arrangements of two LTI systems $h_1(t)$ and $h_2(t)$, given in Figure-4, Which of the following statements are true or false? **(2 Marks)**

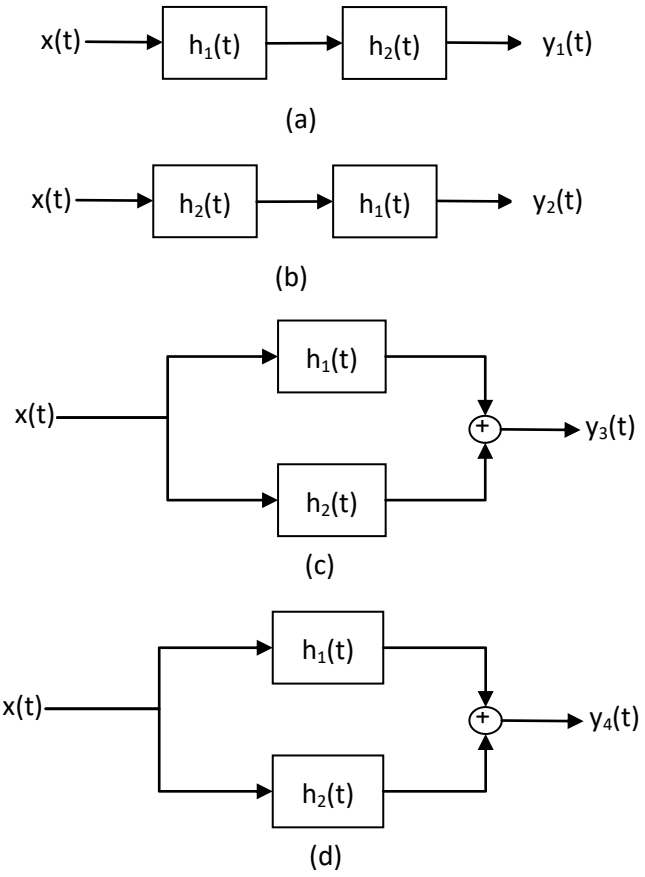

Figure-4

i) $y_1(t) = y_2(t)$
State the law which leads you to your answer.

ii) $y_3(t) = y_4(t)$
State the law which leads you to your answer.