# Fall 2018 - Quiz 2 <br> ECE 301: Signals and Systems 

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## Problem 1

The output at time $n$ is obtained by accumulating the values of the input from $n-5$ to $n+5$.
a What is the impulse response?
b What is $y[n]$ when $x[n]=u[n]-u[n-4]$, where $u[n]$ indicates unit step.
c Is this system
i Causal?
ii Memoryless?
iii Stable?

## Problem 2

A discrete LTI system with input $x_{1}[n]$ (shown in $1(\mathrm{a})$ ) produces the output $y_{1}[n]$ (shown in $1(\mathrm{~b})$ ). Find the output produced by this system for the input $x_{2}[n]$ (shown in 1(c))


Fig $a: x_{1}[n]$


Figb: $y_{1}[n]$


Figure 1

