Department of Electronics and Communication Engineering
Innovative Teaching Methods

Activity Title	Technical Quiz
Faculty Name/Department	Mrs.E.Jayanthi /ECE
Mapped Course Name & Code	EC3354- Signals and Systems
Date	11/10/2022
Benefitted Students (Year / Sem / Dept)	II/III/ECE
Topic	CT signals/LTI-CT systems/LTI -DT systems
Description	Analysing the continuous time and Discrete time signals .It is used to learn about the differentiation of time invariant and variant systems of the signals
Course Outcomes (CO)	CO2: To know the methods of characterization of CT and LTI systems in time domain
Performance Indicator (PI)	1.4.1
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| Activity Photos | |

Topics/ Questions:

LEVEL I

1. The type of systems which are characterized by input and the output quantized at certain levels are called as
   a) analog
   b) discrete
   c) continuous
   d) digital

2. A time invariant system is a system whose output
   a) increases with a delay in input
   b) decreases with a delay in input
   c) remains same with a delay in input
   d) vanishes with a delay in input

3. When we take up design of systems, ideally how do we define the stability of a system?
   a) A system is stable, if a bounded input gives a bounded output, for some values of the input
   b) A system is unstable, if a bounded input gives a bounded output, for all values of the input
   c) A system is stable, if a bounded input gives a bounded output, for all values of the input
   d) A system is unstable, if a bounded input gives a bounded output, for some values of the input

4. An LTI system is memoryless only if _____
   a) It does not store the previous value of the input
   b) It does not depend on any previous value of the input
   c) It does not depend on stored values of the system
   d) It does not depend on the present value of the input

5. A continuous time LTI system has memory only when _____
   a) It does not depend on the present value of the input
   b) It only depends on the past values of the input
   c) Its output always depends both on the previous and past values of the input
   d) Its output might depend on the present value as well as the previous value of the input
   (Ans : b)

6. Which of the following system is memoryless?
   a) h(t)=0,t $\neq$0
   b) h(t)=x(t-1)
   c) h(t)=0, t=0
   d) h(t)=kx(t+2)

7. A continuous time LTI system is invertible only when its inverse exists.
   a) True
   b) False

8. Invertibility is only followed by continuous time LTI systems.
   a) True
   b) False

9. Which property of an LTI system does the following equation prove h[n]*h1[n]=∂[n]?
   a) Invertibility
   b) Stability
   c) Associativilty
   d) Commutative

10. An important property for causality of the system is _____
    a) Initial rest
    b) Final rest
    c) It is memoryless
    d) It is unstable

LEVEL II

1. Is the function $y[n] = \cos(x[n])$ periodic or not?
   a) True
   b) False

2. Comment on the causality of the following discrete time system: $y[n] = x[-n]$.
   a) Causal
   b) Non causal
   c) Both Casual and Non casual
   d) None of the mentioned

3. Comment on the causality of the discrete time system: $y[n] = x[n+3]$.
   a) Causal
   b) non-Causal
   c) Anti Causal
   d) None of the mentioned

4. Comment on the time invariance of the following discrete system: $y[n] = x[2n+4]$.
   a) Time invariant
   b) Time variant
   c) Both Time variant and Time invariant
   d) None of the mentioned

5. Is the system $y[n] = x^2[n-2]$ linear?
   a) Yes
   b) No

6. Is the signal $x(t) = \exp(-t)*\sin(t)$ periodic in nature?
   a) Yes
   b) No

7. Which among the following are the stable discrete time systems?

   1. $y(n) = x(4n)$
   2. $y(n) = x(-n)$
   3. $y(n) = ax (n) + 8$
   4. $y(n) = \cos x(n)$

   a) 1 & 3
   b) 2 & 4
   c) 1, 3 & 4
   d) 1,2,3 & 4

8. Which of the following time system operates with a continuous time signal & produces a continuous time output signal

   a). Continuous time system

   b). Discrete time system

   c). Time invariant system

   d). Time variant system

9. Which block of the discrete time systems requires memory in order to store the previous input?
   a) Adder
   b) Signal Multiplier
   c) Unit Delay
   d) Unit Advance

10. What does the term y(-1) indicate especially in an equation that represents the behaviour of the causal system?

   a) initial condition of the system
   b) negative initial condition of the system
   c) negative feedback condition of the system
   d) response of the system to its initial input

| Group Name | Reg No. | Topic | Marks | | Total Marks |
			Level I (10)	Level II (10)	(20)
A	311821106001	CT/LTI/DT Signals	4	5	9
	311821106002	CT/LTI/DT Signals	4	5	9
	311821106003	CT/LTI/DT Signals	4	5	9
	311821106004	CT/LTI/DT Signals	4	5	9
	311821106005	CT/LTI/DT Signals	4	5	9
	311821106006	CT/LTI/DT Signals	4	5	9
	311821106007	CT/LTI/DT Signals	4	5	9
	311821106008	CT/LTI/DT Signals	4	5	9
	311821106009	CT/LTI/DT Signals	4	5	9
	311821106010	CT/LTI/DT Signals	4	5	9
B	311821106011	CT/LTI/DT Signals	3	6	9
	311821106012	CT/LTI/DT Signals	3	6	9
	311821106013	CT/LTI/DT Signals	3	6	9
	311821106014	CT/LTI/DT Signals	3	6	9
	311821106015	CT/LTI/DT Signals	3	6	9
	311821106016	CT/LTI/DT Signals	3	6	9
	311821106017	CT/LTI/DT Signals	3	6	9
	311821106018	CT/LTI/DT Signals	3	6	9
	311821106019	CT/LTI/DT Signals	3	6	9
	311821106020	CT/LTI/DT Signals	3	6	9
	311821106021	CT/LTI/DT Signals	3	6	9

	311821106023	CT/LTI/DT Signals	4	4	8
	311821106024	CT/LTI/DT Signals	4	4	8
	311821106025	CT/LTI/DT Signals	4	4	8
	311821106026	CT/LTI/DT Signals	4	4	8
C	311821106027	CT/LTI/DT Signals	4	4	8
	311821106028	CT/LTI/DT Signals	4	4	8
	311821106030	CT/LTI/DT Signals	4	4	8
	311821106031	CT/LTI/DT Signals	4	4	8
	311821106032	CT/LTI/DT Signals	4	4	8
	311821106033	CT/LTI/DT Signals	6	5	11
	311821106034	CT/LTI/DT Signals	6	5	11
	311821106035	CT/LTI/DT Signals	6	5	11
D	311821106036	CT/LTI/DT Signals	6	5	11
	311821106302	CT/LTI/DT Signals	6	5	11
	311821106303	CT/LTI/DT Signals	6	5	11
	311821106304	CT/LTI/DT Signals	6	5	11

Outcome:

- Determine if a given system is linear/causal/stable and determine the frequency components present in a deterministic signal

- Students will able to analyze the problems in the periodic signals,