DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE		
Supplementary Examination – Summer 2022		
Course: B. Tech. Branch : Electrical Semester :III		
Subject Code & Name: Signal & System (BTEEE305C)		
Max Marks: 60 Date: Duration: 3 Hr.		

Instructions to the Students:
1. *All the questions are compulsory.*
2. *The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.*
3. *Use of non-programmable scientific calculators is allowed.*
4. *Assume suitable data wherever necessary and mention it clearly.*

		(Level/CO)	Marks
Q. 1	**Solve Any Two of the following.**		
A)	**Explain in detail Linear & non-linear system**	CO1	6M

B)	**Define Signals. Express the following standard signals in its shape and mathematical form:**
	
	      i. **Unit step signal**
	
	      ii. **Ramp signal**
	
	      iii. **Impulse signal**
		CO1	6M

C)	**Differentiate between Continuous time signals (CT signals)& discrete time signals (DT signals).**	CO1	6M
Q.2	**Solve Any Two of the following.**		
A)	**Explain in detail properties of LTI system.**	CO2	6M
B)	**Define System. State Linearity and time invariant properties of system.**	CO1	6M

C)	**Explain the following operations on signal**
	
	      i. **Time advance**
	
	      ii. **Time delay**
	
	      iii. **Folding.**
		CO1	6M

Q. 3	**Solve Any Two of the following.**		
A)	**Explain in detail properties of Fourier Transform.**	CO2	6M
B)	**Find the laplace Transform of the square wave shown in fig** 	CO2	6M

C)	State and prove the convolution property of the fourier transform and find the fourier transform of the following signal: $Y(t)=e^{-at}.u(t)*u(t)$	CO2	6M
Q.4	Solve Any Two of the following.		
A)	Explain in detail state variable equations and matrix representations of the system.	CO1	6M
B)	Find the convolution integral of $x1(t)=e^{-at}u(t)$ and $x2(t)=e^{-bt}.u(t)$	CO2	6M
C)	Determine zero input response of system described by second order difference equations: Y(n)-5/6 Y(n-1)+1/6 Y(n-2)=0	CO2	6M
Q. 5	Solve Any Two of the following.		
A)	Explain Sampling of DT signal also explain aliasing.	CO1	6M
B)	Explain in detail properties of z-transform.	CO2	6M
C)	Explain in detail convolution sum	CO1	6M
	*** End ***		

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