PRESIDENCY UNIVERSITY, BENGALURU
SCHOOL OF ENGINEERING

Max Marks: 40   Max Time: 120 Mins   Weightage: 40 %

ENDTERM FINAL EXAMINATION

I Semester AY 2017-18   Course: **ECE/EEE 202 Signals and Systems**   20 DECEMBER 2017

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Instructions:
   i.   Write legibly
   ii.   Scientific and non programmable calculators are permitted
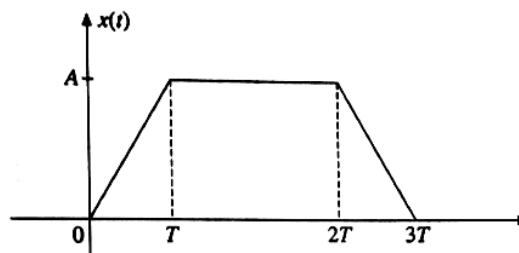
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Part A

[3Q x 6 M= 18 Marks]

1. Sketch x[n] and find Z transform of the DT signal **x[n] = U[n]-U[n-5].**
2. State and prove Parseval's Energy theorem/ Parseval's Identity in Fourier transform.
3. Find the Laplace transform of **x(t)=t u(t).**

Part B

[1 Q x 10 M= 10 Marks]

4. Find the Fourier transform of the signal **x(t)** shown in the below figure.

Part C

[1 Q x 12 M= 12 Marks]

5. State and Prove

   a. Time Shifting Property of Z-Transform.

   b. Convolution in Time Domain Property of Laplace Transform.

   c. Complex Conjugate Property of Fourier Transform.

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Max Marks: 20   Max Time: 60 Mins   Weightage: 20 %

TEST 2

I Semester 2017-2018   Course: **ECE/EEE 202 Signals And Systems**   26 OCT 2017

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Instructions:
   i.   Write legibly
   ii. Scientific and non programmable calculators are permitted

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Part A

(1Q x 4M= 4 Marks)

1. Derive the expression for response of a continuous time LTI system with neat block diagram.

Part B

(1Q x 6M= 6 Marks)

2. Check whether the following systems are
1. Static or Dynamic
2. Causal or Non-Causal, with required explanation.
3. Time Invariant or Time Variant.
The system is characterized by the equation $y[n] = x[n]x[n-2]$.

Part C

(1Q x 10M= 10 Marks)

3. Find The response $y[n]$, of the DT-LTI system using equation expansion method having excitation/input $x[n]=[1,2,3]$ and impulse response $h[n]=[-1,-2,-3]$.

Max Marks: 20   Max Time: 60 Mins   Weightage: 20 %

TEST 1

I Semester 2017-2018   Course: **ECE/EEE 202 Signals And Systems**   18 SEPT 2017

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Instructions:
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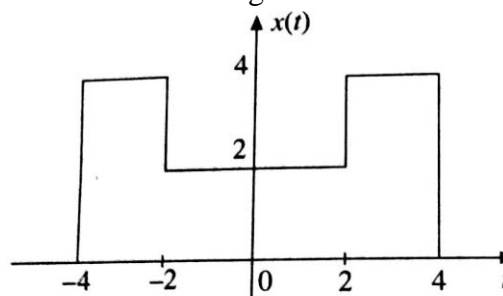
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Part A

(1Q x 4M= 4 Marks)

1. Plot the continuous time signal x(t),and check whether it is periodic or not, if periodic find the fundamental time period. $\mathbf{x(t) = 2e^{-a|t|}}$,where a>0.

Part B

(1Q x 6M= 6 Marks)

2. Find the energy of the signal shown in the below figure.

Part C

(1Q x 10 M= 10 Marks)

3. Define mathematically and Sketch the following standard signals
   a) Continuous Time Unit Step signal
   b) Discrete time ramp signal
   c) Continuous Time sinusoidal signal
   d) Discrete Time Exponential Signal
   e) Discrete Time Unit Impulse