



PRESIDENCY UNIVERSITY, BENGALURU  
SCHOOL OF ENGINEERING

Max Marks: 30

Max Time: 55Mins

Weightage: 15 %

Set A

TEST 3

II Semester 2016-2017 Course: ECE/EEE A 202 Signals and Systems

17 April 2017

Instructions:

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

Part A

(3 Q x 4 M= 12 Marks)

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

Part B

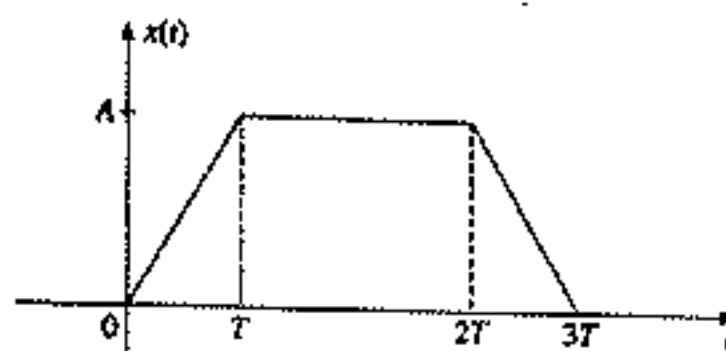
(1 Q x 8 M= 8 Marks)

4. Find the Laplace transform of the signal  $x(t) = e^{-5t} \sin(10at)u(t)$ .

Part C

(1 Q x 10 M= 10 Marks)

5. Find the Fourier transform of the signal  $x(t)$  shown in the below figure.





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TEST 2

II Semester 2016-2017 Course: ECE/EEE A 202 Signals and Systems

20 March 2017

Instructions:

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

Part A

(2 Q x 6 M= 12 Marks)

1. Write short notes on DIRCHLET'S conditions and their importance in signals and systems.
2. State and prove convolution in time domain property of fourier series.

Part B

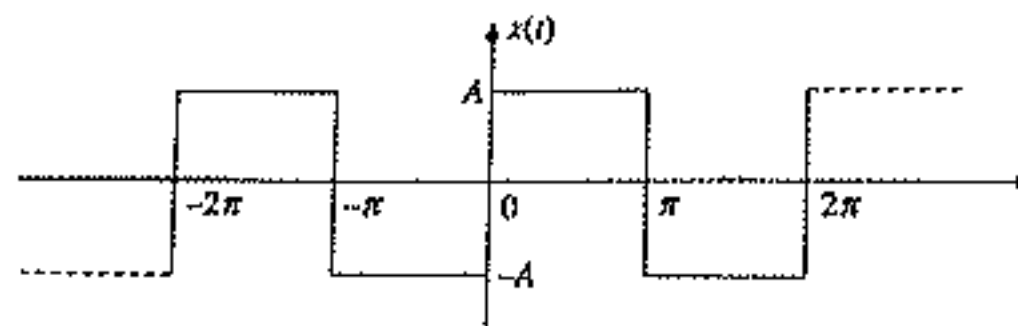
(1 Q x 8 M= 8 Marks)

3. Derive the expressions for all trigonometric fourier series coefficients.

Part C

(1 Q x 10 M= 10 Marks)

4. Find the exponential fourier series expansion for the signal  $x(t)$  shown in the below figure.





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TEST 1

II Semester 2016-2017 Course: ECE/EEE A 202 Signals and Systems

20 February 2017

Instructions:

- Write legibly
- Scientific and non programmable calculators are permitted

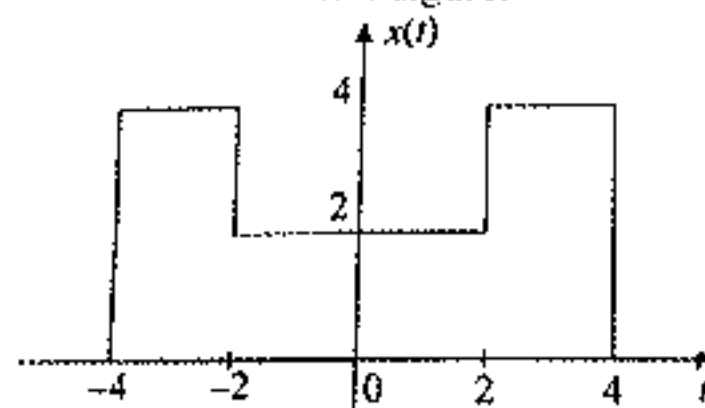
Part A

(2 Q x 6 M= 12 Marks)

- Plot the continuous time signal  $x(t)$ , and check whether it is periodic or not, if periodic find the fundamental time period.

$$x(t) = e^{-t}$$

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



Part B

(1 Q x 8 M= 8 Marks)

- Check whether the following system is
  - Static or Dynamic
  - Linear or Non-linear
  - Causal or Non-Causal,
  - Time Invariant or Time Variant, with required explanation.

The system is characterized by the equation  $y[n] = x[n]x[n-2]$ .

Part C

(1 Q x 10 M= 10 Marks)

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