8. Give the statement for the following theorems for laplace transform.

a) Initial value theorem

b) Final value theorem

9. Write short notes

i) Nyquist rate

ii) Aliasing

OR

10. Write shot notes.

a) Flat top sampling

b) Zero-order sampling.

V-088

Roll No._____ Total Printed Pages : 4

05BEC101

B.TECH (ELEC. & COMM. ENGG.)

V-SEM Examination, Dec.-2016

SUB: SIGNALS AND SYSTEMS

Time : 3 Hours] [Total Marks 60

Use of following supporting material is permitted during examination.

1._____Nil _____ . _____ Nil_____

Note: 1. Attempt all five questions.

2. Each question carry equal marks.

1. a) Explain important condition for periodicity of a discrete time signal.

b) Sketch the following signal

$x(t)=e^{-at}$ for $a > 0$

Also determine whether the signal is power or an energy signal or neither.

Signal & System

OR

2. a) Explain the following properties of LTI system.

   i) Commutative property

   ii) Distributive property

   iii) Casualty

   iv) Stability

   b) Drive the relationship for convolution sum for discrete time signals.

3. **What is convolution? Explain time-convolution and frequency convolution theorems.**

OR

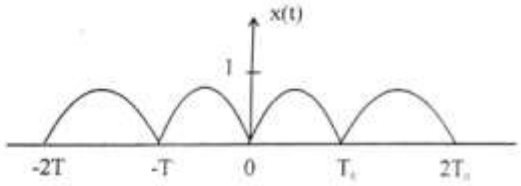
4. State and prove following properties of fourier transform.

   i) Time scaling

   ii) Time shifting

   iii) Frequency shifting.

5. Find the trigonometric Fourier series representation for the rectified sine wave shown in figure.



OR

6. a) Distinguish discrete time Fourier series (DTFS) from continious time Fourier series(CTFs).

   b) Explain the concept of negative frequency.

7. a) Obtain inverse z-transform of-

$$x(z) = \frac{3}{z-2} \quad z > 2$$

   b) Explain the sealivy property of Z-transform.

OR