Bharati Vidyapeeth's College of Engineering for Women, Pune

Electronics and Telecommunication Department

Unit Test: 1 (Marks: 30) Academic Year:2008-09

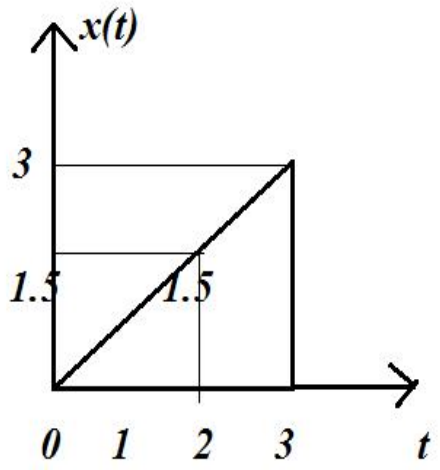
Subject: SNS

Q 1.find whether the foll. Signal are periodic if yes find periodicity.

1.X(t)=2cos t +3cos t/3

2.cos(3 *3.14*n) (5m)

Q 2. A ct signal is shown in fig.



1.x(t-2) 2.x(2t) 3.x(-t)

Q 2. Determine if foll. System described by,

1. Y(t)=sin[x(t-2)]
2. Y(n)= x(2-n)

Memoryless, causal, linear, time variant, stable. (5m)

Q3. Determine whether the foll. ILT system describe by impulse respons. (5m)

1.h(t)=e^t u(t+1)

Q4. The impulse response of time invariant is,

H(n)= {1,2,1,-1}

Q5. Determine response of the system to the input

Q6. State & prove commutative property of convolution integral.

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Unit Test: 1 (Marks:30) Academic Year:2010-11

Subject: SNS

Qu1 A) Determine whether the following systems are memoryless or withmemory,linear,time invariant,stable and causal and invertible

i)X(t/2) 10M

B) Determine whether the following signals are energy ,power signals or Neither

i) $x[n]=2e^{j3n}$ ii)$x(t)= e^{-at}u(t)$ iii)$x(t)=\begin{cases} t\ ;0<=t<=1 \\ 2-t;\ 1<=t<=2 \\ 0;\ \text{otherwise} \end{cases}$ 5M

Qu2 A) State the properties of convolution sum 7M

B) Obtain the convolution of the sequences 8M

i) x[n]={1,2,-2,-1} h[n]={2,1,1,-1}

ii)$x[n]*u[n]=\sum_{k=-\infty}^{n} x[k]$

iii)$x[n]*u[n-n_0]=\sum_{k=-\infty}^{n-n0} x[k]$

iv)$x[n]*\delta[n]=x[n-n_0]$

Note : All questions are compulsory

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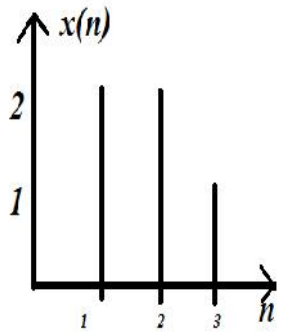
Unit Test:1 (Marks:30) Academic Year:2011-12

Subject: SNS

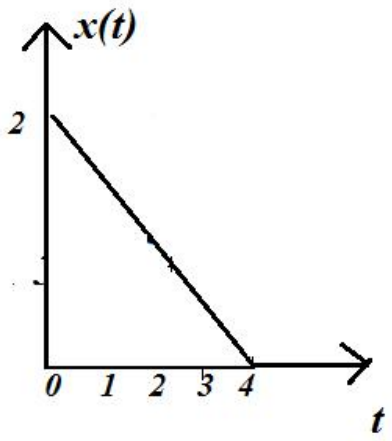
Q 1. Find even & odd pairs of following.

1.



2. g(t)= 2t^2-3t+6 4M

Q 2. 1. Perform foll. Operation on given signal



1.x(t+2)

2.x(2t)

3.x(2t+2)

4.x(-t+1)

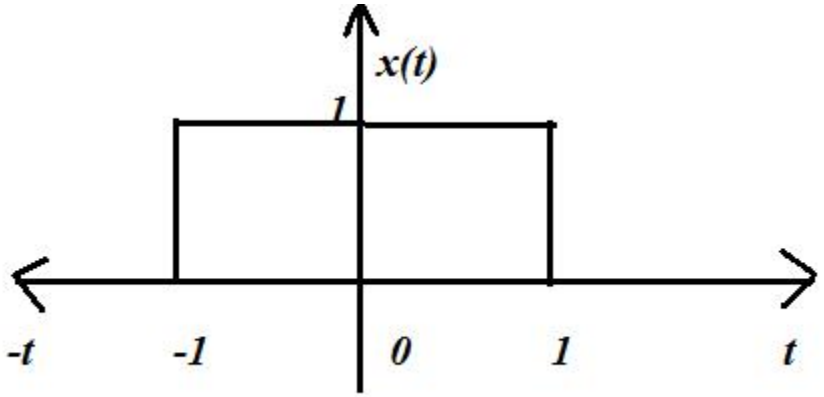
2. x(t)=r(t+1)-r(t-1)-2u(t-3) 4M

Q 3.find whether the foll. Systems are 1.static 2.causal 3.time variant 4.stable 5.invariable

A] y(t)= cos x(t)

B] y(t)=x(t-5)-x(3-t) 12M

Q 4. Perform convolution of the foll. Signals Using graphical method



4M

Q 5.determine whether or not foll. Sig. are periodic or not. If periodic then find its fundamental period.

A]x(n)=cos1/4 n 2M

Q 6 find convolution of foll. Sequences Using graphical , analytical &tabular method.

A]x(n)={4,5} &h(n)={3,2,1,0} 2M

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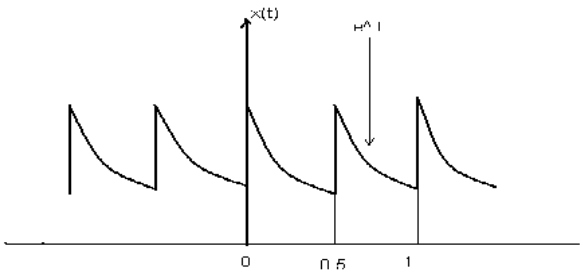
Electronics and Telecommunication Department

Unit Test:2 (Marks:30) Academic Year:2010-11

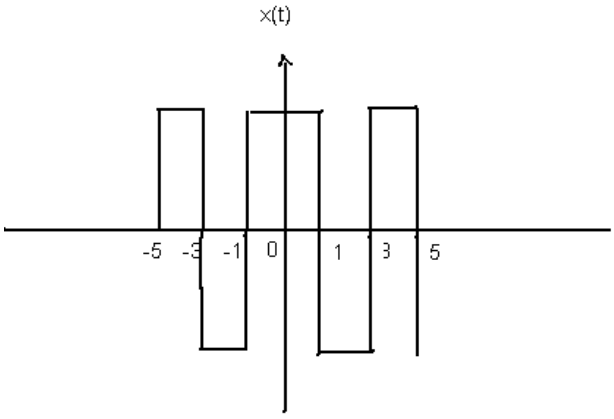
Subject: SNS

Qu 1 Find Trignometric F.S., Polar F.S. for the period signal shown in periodic exponential pulse. 15M



OR

Qu2 A)Find trigonometric F.S. for the period signal x(t) shown in fig 6M



Qu2B)State the following properties of F.T 9M

a) Time scaling b) Frequency shifting property c)differentiation in time domain

Qu3 State the following properties of L.T 15M

a) Time shifting b)shifting in S domain c)time scaling d) differentiation in time domain

e) Convolution property

OR

Qu4 A) Find the L.T. of 8M

a)$x(t)=-e^{-at}u(-t)$ b)$x(t)=e^{at}u(-t)$ c)$e^{-at}\cos w_0 u(t)$ d)$e^{-at}\sin w_0 tu(t)$

Qu4 B) Find the L>T. of x(t) and sketch the pole zero plot with ROC 7M

a)$x(t)=e^{-2t}u(t)+e-^{3t}u(t)$

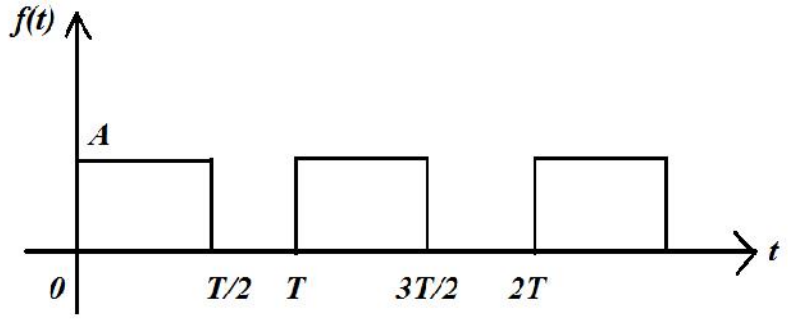
Bharati Vidyapeeth's College of Engineering for Women, Pune

Electronics and Telecommunication Department

Unit Test:2 (Marks:50) Academic Year:2011-12

Subject: SNS

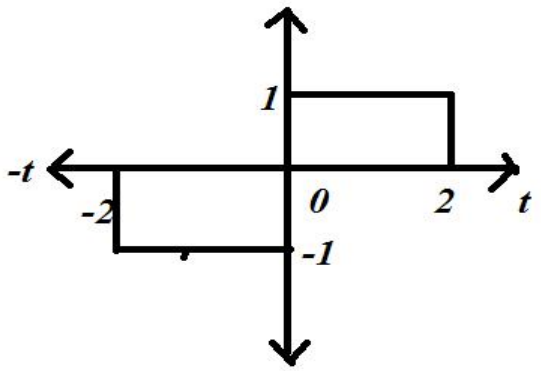
Q1. Find the trigonometric fourier series for the wave shown in fig. (5m)



Q2 .find the countinous time FT of the following signal

1.cos w t u(t)

2. x(t) of fig (5m)



Q3.find the FT of the following using convoluation property .

(xct)= rect(t)* rect(t)

Where

Rect(t)= -1\2<t <1\2

0 Otherewise (3m)

q4.find inverse FT of following signal

1> X(jw)=6jw+16

(jw)+5jw+6

2> Jw+3

(jw+1)^2 (5m)

Q5. Find L.T. & the associated ROC for each of following signal

1.x(t)=U(t-A)

2. x(t)=e^2t{u(t)-u(t-5)} (4m)

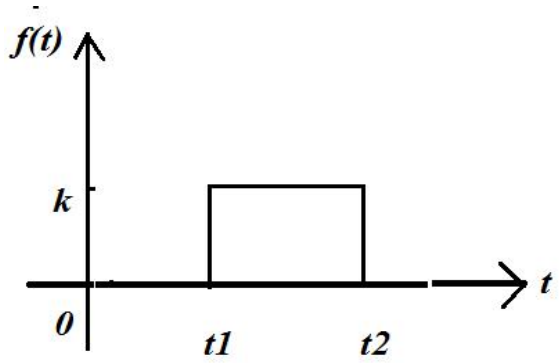
Q6. Using the various L.T. properties derive the L.T.

1.e^-at cos wt u(t)

2.sin wt u(t)

3.t^2 sin wt using diff. property (4m)

Q7. Find out the L.T of shifted gate pulse shown below (4m)



Q8.find ILT Of

X(s)={(s^2+6s+7)/(s^2+3s+2)} (4m)

Q9 solve the diff. eq.

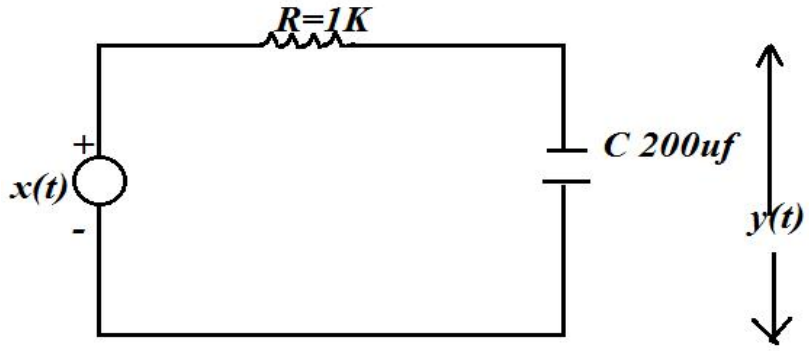
d^2y(t)/dt^2 + 4 dy(t) /dt +5y(t)= 5x(t) (4m)

with y(0)=1 & [dy(t)/dt]|0 =2& input x(t)= u(t)

Q10.find the voltage across capacitor y(t) for the RCckt. Shown in fig.

In response to applied vtg. X(t)=3/5 e^-2t u(t) (4m)

& initial condition y(0) =2



Q 11. the I.r. of the system is given as

h(t)=d(t)+e^-3t u(t)+2e^-t u(t)

determine the transfer function of the invers system (2m)

Q 12. Determine whether the foll. LIT system describe by impulse response.

1.h(t)=e^-t u(t+1)

2.h(t)=e^t u(-t-1)

Are stable &causal. (5m)