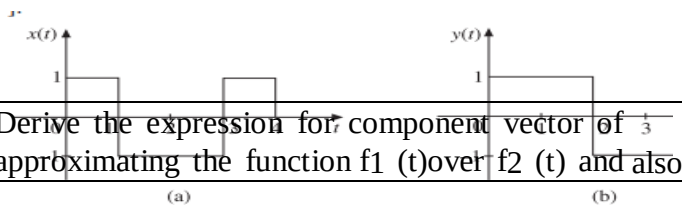
QUESTION BANK

S NO	Questions	Blooms Taxonomy Level	Course Outcome
	UNIT-I		
1.	Which analogy helps in signal analysis?	Understand	1
2.	What are orthogonal functions?	Understand	1
3.	What is orthogonal vector space?	Understand	1
4.	What is orthogonal signal space?	Understand	1
5.	Show that the following signals are orthogonal over an interval [0, 1] X1(t)=2 and x2(t)=√3(1-2t)	Knowledge	1
6.	Define unit step function.	Understand	1
7.	Define unit parabolic function.	Understand	1
8.	Define unit ramp signal.	Understand	1
9.	Define unit impulse signal.		
10.	Define complex exponential signal?	Understand	1
11.	What is real exponential signal?	Understand	1
12.	Define Sinusoidal function.	Understand	1
13.	Define Signum function.	Understand	1
14.	Define Sinc function.	Understand	1
15.	Sketch the following signals. a)u(-t+2) b)-2u(t+2) c)4r(t)	Knowledge	1
16.	What are the major classifications of the signal?	Understand	1
17.	Define continuous time signals and classify them	Knowledge	1
18.	Define discrete time signals and classify them	Knowledge	1
19.	Define periodic signal and non-periodic signal.		1
20.	Write the expressions for total energy E and average power P of a signal.	Understand	1
21.	Distinguish between causal and non-causal signals.	Knowledge	1
22.	Write the expressions for even and odd parts of a signal.	Understand	1
23.	Define energy and power signals?	Understand	1
24.	Define even and odd signal?	Understand	1
25.	Define the Parseval's Theorem?	Understand	1
	Long Answer Questions		
1.	Present the analogy between vectors and signals.	Apply	1
2.	Show that the functions sin nw0t and cosmw0t are orthogonal over any interval {t0 to [t0 + (2p/w0)]} for integral values of n and m.	Apply	1
3.	Prove that the signals x(t) and y(t) given in Figure are orthogonal over the interval [0, 4]  	Apply	1
4.	Derive the expression for component vector of approximating the function f1 (t)over f2 (t) and also	Apply	1

	prove that the component vector becomes zero if the $f_1(t)$ and $f_2(t)$ are orthogonal.		
5.	Derive an expression for computing Mean Square Error in approximating a function f(t) by a set of n orthogonal functions.	Understand	1
6.	Prove that the complex exponential functions are orthogonal functions.		1
7.	What are the basic operations on signals? Illustrate with an example each of them	Apply	1
8.	Define Even and Odd signal .Find the even and odd components of the following signals i) $x(t)= 1 +2t+ 3t^2+ 4 t^3$ ii) $x(t) =u (t+2)$	Apply	1
9.	Define and sketch the following signals i) Unit Step function ii) Unit impulse function iii) Signum function iv)unit Ramp v) Exponential function	Apply	1
10	Examine whether the following signals are periodic or not? If periodic determine the fundamental period. i) $\sin 12\pi t$ ii) $\cos 2t+ \sin \sqrt{3}\, t$ iii) $\sin (0.02\pi n$		
11	Examine whether the following signals are periodic or not? If periodic determine the fundamental period .i) $\sin 10t+ \cos 20ptm$ ii) $u(t) – 2u(t – 5)$ iii) $3u (t) 2 \sin 2 t$	Knowledge	1
12	Determine the energy and power for the following signals and hence determine whether the signal id energy or power signal i) $x(t)=e^{-3t}$ ii) $x(t)=e^{-3\|t\|}$ iii) $x(t)= e^{-10t} u(t)$ iv) $x(t)=A e^{j2\pi at}$		1
13	Define the following: a) i) Energy-type signals ii) Power-type signals	Understand	1