CONTINUOUS INTERNAL EVALUATION- 1

Dept:EC	Sem / Div:VI	Sub:Digital Communication	S Code:18EC61
Date:24-05-2021	Time: 9:30-11:00 am	Max Marks: 50	Elective:N
Note: Answer any 2 full questions, choosing one full question from each part.			

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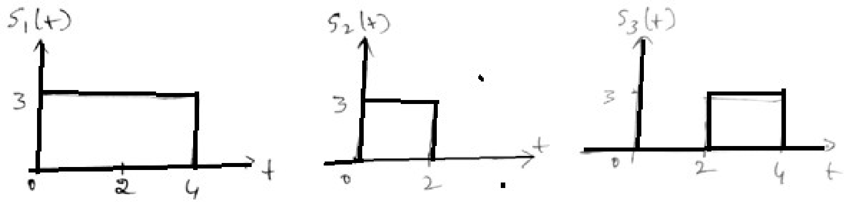
Q N		Questions	Marks	RBT	COs
		PART A			
1	a	Define Hilbert Transform. State the properties of it.	8	L2	CO1
	b	Define power spectral density. Draw the power spectra of Unipolar NRZ and Bipolar RZ format.	7	L3	CO1
	c	State and prove the Schwarz Inequality.	10	L2	CO2
		OR			
2	a	Define the complex envelope of bandpass signals. Obtain the canonical representation of bandpass signals.	10	L2	CO1
	b	Write short note on B8ZS and B6ZS.	5	L2	CO1
	c	Explain the geometric representation of signals. Show that energy of the signal is equal to the squared length of the vector representing it.	10	L2	CO2
		PART B			
3	a	Derive the expression for the complex low pass representation of band pass systems	10	L2	CO1
	b	Obtain the Hilbert transform of x(t) = Sin 2πfct.	5	L3	CO1
	c	Explain the Gram-Schmidt orthogonalization procedure.	10	L2	CO2
		OR			
4	a	What is line coding? For the binary stream 01101001 sketch the following: i) Unipolar NRZ, ii) Polar NRZ, iii) Unipolar RZ, iv) Bipolar RZ, v)Split phase or Manchester code	10	L3	CO1
	b	Obtain the Hilbert transform of x(t) = Cos 2πfct.	5	L3	CO1
	c	Three signals S1(t) S2(t) and S3(t) are shown in the figure. Apply Gram-Schmidt procedure to obtain the orthonormal basis functions. Express the signals S1(t) S2(t) and S3(t) in terms of orthonormal basis functions. Also give the signal constellation diagram. 	10	L3	CO2

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