Vivekananda College of Engineering & Technology,Puttur [A Unit of Vivekananda Vidyavardhaka Sangha Puttur ®] Affiliated to VTU, Belagavi & Approved by AICTE New Delhi			
CRM08	Rev 1.10	BS	04/01/22

CONTINUOUS INTERNAL EVALUATION - 2

Dept:BS	Sem / Div: III/A,B	Sub:Transform Calculus,Fourier Series and Numerical Techniques	S Code:18MAT31
Date:11-01-22	Time: 9:30-11:00	Max Marks: 50	Elective:N

Note: Answer any 2 full questions, choosing one full question from each part.

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QN		Questions	Marks	RBT	CO's
		PART A			
1	a	Find (I) L[cost cos2t cos3t] (ii) $L[\frac{1-cost}{t}]$	8	L2	CO1
	b	A periodic function of period 'a' is defined by $f(t)=\begin{cases} E, & 0<t<\frac{a}{2} \\ -E, & \frac{a}{2}<t<a \end{cases}$ .Then Show that $L[f(t)]=\frac{E}{S}\tanh(\frac{as}{4})$	8	L3	CO1
	c	Solve: $y''(t)+5y'(t)+6y(t)=5e^{2t}$ with $y(0)=2, y^1(0)=1$ by using Laplace Transform	9	L2	CO1
		OR			
2	a	Express the following function in terms of Unit Step function and hence find its Laplace Transform where $f(t)=\begin{cases} cost, & 0<t<\pi \\ cos2t, & \pi<t<2\pi \\ cos3t, & t>2\pi \end{cases}$	8	L2	CO1

	b	Find $L^{-1}[\frac{s^2}{(s^2+a^2)^2}]$ using Convolution theorem	8	L2	CO1
	c	Find (i) $L^{-1}[\frac{s+3}{(s^2-4s+13)}]$ (ii) $L^{-1}[\frac{1}{3}\log(\frac{s^2+b^2}{s^2+a^2})]$	9	L2	CO1
		PART B			
3	a	Find Z transform of (i) $sinhn\theta$ (ii) $coshn\theta$	8	L2	CO3
	b	Find the Inverse Z transform of $\frac{3z^2+2z}{(5z-1)(5z+4)}$	8	L2	CO3
	c	Solve the difference equation $u_{n+2}-3u_{n+1}+2u_n=0$ with $u_0=0, u_1=-1$	9	L3	CO3
		OR			
4	a	Find the Z transform of (i) $\cos[\frac{n\pi}{2}+\frac{\pi}{4}]$ (ii) sin(3n+5)	8	L2	CO3
	b	Find the Inverse Z transform of $\frac{z}{(z-3)(z-2)}$	8	L2	CO3
	c	Solve the difference equation $u_{n+2}+6u_{n+1}+9u_n=2^n$ with $u_0=0, u_1=0$	9	L3	CO3

Prepared by: Ravishankar N K

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