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Internal Assessment Test II - December 2023

Sub:	Engineering Mathematics-I					Sub Code:	BMATS101			
Date:	01/12/2023	Duration:	90 mins	50	Sem / Sec:	I / I to L (Chem	CYCLE)	0	BE	
	Question 1 is compulsory and answer any SIX questions from the rest.								CO	RBT
1.	Derive the exp	pression for	the radius	of curvature fo	or the	curve r =	$\mathbf{f}(oldsymbol{ heta})$	[08]	CO1	L3
2.	Evaluate: (i) l_x	$\lim_{x\to 0} \left(\frac{\tan x}{x}\right)^{1}$	/x (ii) li	$\lim_{t\to 0} \left(\frac{(a^x + b^x + c^x)}{3} \right)$	$\left(\frac{1}{x}\right)^{1/x}$			[07]	CO2	L3
3.	Find the angle	between th	ne curves r^r	$a^n = a^n \sec n\theta$	and	$r^n = a^n \operatorname{co}$	$\operatorname{sec} n\theta$.	[07]	CO1	L3
4.	Show that for t	the curve r =	= a (1 + cos(θ) ρ² varies as	r.			[07]	CO1	L3

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Internal Assessment Test II – December 2023

Sub:	Engineering M	Iathematics- l	[Sub Code:	BMATS101			
Date:	01/12/2023	Duration:	90 mins	Max Marks:	50	Sem / Sec:	I/I to L (Chem	CYCLE)	0	BE
	<u>Questio</u>	on 1 is compu	lsory and an	swer any SIX qu	uestio	ns from the r	est.	MARKS	CO	RBT
1.	Derive the exp						$\mathbf{f}(oldsymbol{ heta})$	[08]	CO1	L3
2.	Evaluate: (i) l_x	$\lim_{x\to 0} \left(\frac{\tan x}{x}\right)^{1/2}$	(ii) li	$ \underset{\rightarrow}{\mathbf{m}} \left(\frac{(a^x + b^x + c^x)}{3} \right) $	$\left(\frac{1}{x}\right)^{1/x}$			[07]	CO2	L3
3.	Find the angle	between th	e curves r^n	$a = a^n \sec n\theta$, and	$r^n = a^n \cos a$	$\sec n \theta$.	[07]	CO1	L3
4.	Show that for t	the curve r =	a (1 + cost	θ), ρ^2 varies as	s r.			[07]	CO1	L3

5.	Obtain the pedal equation for the curve $r^n = a^n(cosn\theta + sinn\theta)$.	[07]	CO1	L3
3.	Obtain the pedal equation for the curve $T = u$ (cosmo + stituo).	[07]		
6.		[07]	CO1	L3
	Find the radius of curvature of $y^2 = \frac{a^2(a-x)}{x}$ at $[a, 0]$.			
		[07]	CO2	L3
7.	Expand $e^{\cos x}$ by McLaurin's series up to the fourth-degree term.			
			CO2	L3
8.	If u=r sin θ cos \emptyset , v=r sin θ sin \emptyset , w=rcos θ , prove that $\frac{\partial(u,v,w)}{\partial(x,y,z)}$ =r ² sin θ	[07]		

5.	Obtain the pedal equation for the curve $r^n = a^n(cosn\theta + sinn\theta)$.	[07]	CO1	L3
6.	Find the radius of curvature of $y^2 = \frac{a^2(a-x)}{x}$ at $[a, 0]$.	[07]	CO1	L3
7.	Expand $e^{\cos x}$ by McLaurin's series up to the fourth-degree term.	[07]	CO2	L3
8.	If u=r sin $\theta cos\emptyset$, v=r sin $\theta sin\emptyset$, w= $rcos\theta$, prove that $\frac{\partial(u,v,w)}{\partial(x,y,z)}$ =r ² sin θ	[07]	CO2	L3