

**CONTINUOUS INTERNAL EVALUATION - 2**

Dept: BS	Sem / Div: I/ A, B, C, D, E & F	Sub: Calculus and Linear Algebra	S Code: 18MAT11
Date: 23/11/19	Time: 9:30am -11:00am	Max Marks: 50	Elective: N

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

QN	Questions	Marks	RBT	CO's
<b>PART A</b>				
1	a Evaluate $\int_{-1}^1 \int_0^z \int_{x-z}^{x+z} (x+y+z) dy dx dz$ .	8	L2	CO3
	b Evaluate $\int_0^1 \int_x^{\sqrt{x}} xy dy dx$ , by changing the order of integration	8	L2	CO3
	c Show that $\int_0^{\infty} \sqrt{y} e^{-y^2} dy \times \int_0^{\infty} \frac{e^{-y^2}}{\sqrt{y}} dy = \frac{\pi}{2\sqrt{2}}$	9	L2	CO3
<b>OR</b>				
2	a Show that $\int_0^{\frac{\pi}{2}} \frac{1}{\sqrt{\sin \theta}} d\theta \times \int_0^{\frac{\pi}{2}} \sqrt{\sin \theta} d\theta = \pi$	8	L2	CO3
	b Prove that $\beta(m, n) = \frac{\Gamma(m)\Gamma(n)}{\Gamma(m+n)}$ .	8	L2	CO3
	c Find the area of the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ by double	9	L2	CO3


	integration			
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**PART B**

3	a	Solve $(5x^4 + 3x^2y^2 - 2xy^3)dx + (2x^3y - 3x^2y^2 - 5y^4)dy = 0$	8	L2	CO4
	b	Solve $(x^2 + y^3 + 6x)dx + y^2x dy = 0$	8	L2	CO4
	c	Solve $x \frac{dy}{dx} + y = x^3y^6$	9	L2	CO4

**OR**

4	a	Solve $x^3 \frac{dy}{dx} - x^2y = -y^4 \cos x$	8	L2	CO4
	b	Solve $(x^2 - 4xy - 2y^2)dx + (y^2 - 4xy - 2x^2)dy = 0$	8	L2	CO4
	c	Solve $(3x^2y^4 + 2xy)dx + (2x^3y^3 - x^2)dy = 0$	9	L2	CO4

Prepared by:  19/11/19  
Soumya.S

HOD: Dr. Mahesh K K 