[Total No. of CO's: 2] **Seat No:** **[Total No. of Pages: 1]**

G. H. Raisoni College of Engineering and Management, Pune.
(An Autonomous Institution)
F.Y B. Tech (All Branches) (Term-II)
CAE-I (2020 Pattern)

Subject Name: Integral Calculus & Differential Equations (UBSL104)

[Time: 1 Hours] **[Max. Marks-15]**

COURSE OUTCOME:

1. Understand and use concept of definite integral & solve engineering problems.
2. Evaluate the multiple integrals using different techniques and apply it to solve engineering problems.
3. Understand vector integration and its applications related to real life problems.
4. Solve first order, first degree & higher order differential equations.
5. Form differential equations for simple engineering systems and find its solution

CO1	***a)***	State DUIS rule 1 and 2	**[2]**	**L1**
	b)	Show that β (m, n) = β (n, m)	**[2]**	**L2**
	c)	Evaluate: $\int_0^\infty x^7 e^{-2x^2}\, dx$	**[3]**	**L3**
		OR		
	d)	Trace the curve $x = (y-1)(y-2)(y-3)$	**[3]**	**L3**
CO2	***a)***	Evaluate $\int_0^1 \int_{y^2}^1 \int_0^{1-x} x\, dz\, dx\, dy$	**[4]**	**L3**
	b)	Set up a double integral to calculate area between the curve y=x and $y^2 = x$ in positive quadrant and hence calculate the area.	**[4]**	**L4**