	Parul University **Faculty of Engineering and Technology** **Parul Institute of Engineering and Technology** **Department: AI-ML/AI-RO/AI/AI-DS/CSE/MICRO/SAP/QUICK/ORACLE/IT/AERO**		
Subject Name	PROBABILITY, STATISTICS AND NUMERICAL METHODS	**A.Y**	2025/2026
Subject Code	303191251	**Semester**	4th
	Chapter-6		
Sr No	**Question**	**COs**	**B.T**
1	Use Trapezoidal Rule to evaluate $\int_0^2 \frac{1}{1+x^2}$ dx using h=0.5.	6	3
2	Use Simpson's 1/3 rule for $\int_0^3 x^2+1 \, dx$.	6	3
3	Use Simpson's 3/8 rule to compute $\int_0^1 e^x dx$	6	4
4	Compare Trapezoidal and Simpson's 1/3 rule for same integral.	6	5
5	Use Euler's Method for $\frac{dy}{dx}$ = y–x with y(0)=1, h=0.1 to find y(0.2).	6	4
6	Use Modified Euler's Method for $\frac{dy}{dx}$ = x²+y² at x=0.1.	6	4
7	Use Taylor series method to approximate y(0.1).	6	3
8	Use RK-4 Method for $\frac{dy}{dx}$ = x+y with y(0)=1 for one step.	6	6
9	Explain stability of Euler's Method.	6	2
10	Compare Euler, Modified Euler and RK-4 methods.	6	2