Mid Sem-I	**Subject: Statistical and Numerical Methods**	**Course Code: CSL 402**
Branch: CSE IV Sem	**Maximum Marks: 15 marks**	**Time- 60 min.**

Note: All questions are compulsory.

Read all the instructions carefully uploaded on google classroom/institute website.

Email ID: drdiddiiiitsonepat@gmail.com for sending snapshots of the answer sheet.

Upload the answer sheet in Google Classroom in pdf format only.

Q-1	Fit the curve $y = ae^{bx}$ to the following data.	(3 marks)
	X 0 1 2 3 4 5 6 7 8 Y 20 30 52 77 135 211 326 550 1052	
Q-2	Using the Newton-Raphson Method find the real root of $xe^x - \cos x = 0$ correct five decimal places.	**(3 marks)**
Q-3	A curve passing the following data. Find the slope of the curve at x=2. (Using legranges Interpolation).	**(3 marks)**
	<table><tr><td>x</td><td>0</td><td>1</td><td>3</td><td>6</td></tr><tr><td>f(x)</td><td>18</td><td>10</td><td>-18</td><td>90</td></tr></table>	
Q-4	Solve the following system of equations by Gauss Seidel Iteration method. $6x_1 + 15x_2 + 2x_3 = 72,\ x_1 + x_2 + 54x_3 = 110,\ 27x_1 + 6x_2 - x_3 = 85$	**(3 marks)**
Q-5	Find the largest Eigen value for the following matrix using power method correct to 2 decimal places. Where $A = \begin{bmatrix} 2 & -1 & 0 \\ -1 & 2 & -1 \\ 0 & -1 & 2 \end{bmatrix}$.	**(3 marks)**