Assignment 2. Gauss-Jordan

Marks 10

Posted on 20.08.2025 @ 2:30 pm and due on 20.08.2025 @ 5:45 pm

1. Prepare a library routine for Gauss-Jordan elimination method using *row pivoting* and check with the system of equations for three variables, **[5]**

$$\begin{array}{rcl}
2y + 5z & = & 1 \\
3x - y + 2z & = & -2 \\
x - y + 3z & = & 3
\end{array}$$

2. Given below is a system of linear equations. Use Gauss-Jordon to solve it. [5]

$$19 = a_1 - a_2 + 4a_3 + 2a_5 + 9a_6$$

$$2 = 5a_2 - 2a_3 + 7a_4 + 8a_5 + 4a_6$$

$$13 = a_1 + 5a_3 + 7a_4 + 3a_5 - 2a_6$$

$$-7 = 6a_1 - a_2 + 2a_3 + 3a_4 + 8a_6$$

$$-9 = -4a_1 + 2a_2 + 5a_4 - 5a_5 + 3a_6$$

$$2 = 7a_2 - a_3 + 5a_4 + 4a_5 - 2a_6$$