Department of Industrial Engineering	Mathematics 1	Mid-Term Exam
Answer **All** questions	Duration: 1 hour	20 Marks

[1] If $A = \begin{bmatrix} 1 & 2 & 1 \\ 2 & 0 & 3 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 2 & 1 \\ 2 & 0 & 3 \end{bmatrix}$, $C = \begin{bmatrix} 3 & 1 \\ 0 & 2 \end{bmatrix}$.

Find, if possible, A + B, A + C, A.B, C.C, C.B, $A.B^t$, $|A|$, $|C|$.

[2] Find the eigenvalues and the eigenvectors of of: $A = \begin{bmatrix} 1 & 2 \\ 3 & 2 \end{bmatrix}$

[3]Determine the type of solution and solve the linear system:

(a) $x - y = 2, \quad 2x - 2y = 3$

(b) $x + y + z = 3, \quad x - 2y + z = 0, \quad 2x - 2y + z = 1.$

Good Luck *Dr. Mohamed Eid*