

R.M.K. ENGINEERING COLLEGE
 (An Autonomous Institution)
 RSM NAGAR, KAVARAIPETTAI – 601 206
ACADEMIC YEAR 2025-2026: ODD SEMESTER
ASSIGNMENT
QPF FORM NO.: RMK-DEP-25

Department: Science and Humanities (Mathematics)**Course Name: Matrices and Calculus****Course Code: 24MA101****Year/Branch/Sec: I/ All Branches except CSBS****Date:****ASSIGNMENT No.1****UNIT No.1****DATE OF SUBMISSION ON OR BEFORE:**

Q. No.	ASSIGNMENT QUESTIONS	Marks	Knowledge level	CO
1	Find the eigenvalues and eigenvectors of the matrix $A = \begin{pmatrix} 2 & -2 & 3 \\ 1 & 1 & 1 \\ 1 & 3 & -1 \end{pmatrix}$.	5	K3	CO1
2	Verify that the matrix $A = \begin{pmatrix} 2 & -1 & 2 \\ -1 & 2 & -1 \\ 1 & -1 & 2 \end{pmatrix}$ satisfies its characteristic equation and hence find A^4 —	5	K3	CO1
3	Reduce the quadratic form $8x^2 + 7y^2 + 3z^2 - 12xy - 8yz + 4xz$ to the canonical form through an orthogonal transformation and hence show that it is Positive Semi definite.	5	K4	CO6

Course Outcomes:

CO1: Explain the concepts of matrix algebra techniques.

CO6: apply matrix algebra techniques to diagonalize the matrix.

***Allotment of Marks**

Correctness of the Content	Presentation	Timely Submission	Total (Marks)
15 marks	10 marks	5 marks	30 marks

* Allotment of Marks can be changed based on the Course and Assignment.