DAYANANDA SAGAR COLLEGE OF ENGINEERING
(An Autonomous Institute Affiliated to VTU, Belagavi)
Shavige Malleshwara Hills, Kumaraswamy Layout, Bengaluru-560078
DEPARTMENT OF MATHEMATICS

COURSE : MATHEMATICS FOR COMPUTER ENGINEERS

COURSE CODE : 21MAT31A

MODULE – 2 : EIGEN VALUES & EIGEN VECTORS

Multiple Choice Questions

Q.NO	QUESTIONS
1.	Find the sum of eigenvalues of a matrix $A = \begin{bmatrix} 0 & i & i \\ i & 0 & i \\ i & i & 0 \end{bmatrix}$. a) 0 b) i c) $2i$ d) $3i$
2.	The product of eigenvalues of a matrix A is zero, then matrix A is _____. a) Diagonal matrix b) Scalar matrix c) Non-singular matrix d) Singular matrix
3.	If matrix A and B are similar matrix of same order, then _____. a) $det(A) = \det(B)$ b) $det(A) \neq \det(B)$ c) $det(A) = \det(B) = 0$ d)None of these
4.	If a matrix A of order n is diagonalizable, then the value of A^n is _____. a) PD^nP^{-1} b) $P^{-1}DP$ c) $P^{-1}P^nD$ d) $D^{-1}P^nD$
5.	The matrix A and A^{-1} have the ____ of the eigenvalues of A. a) same b) different c) reciprocal d) None of these
6.	For a real matrix , if $(-2-3i)$ is an eigenvalue, then matrix A has_____ also an eigenvalue. a) $(-2-3i)$ b) $(-2+3i)$ c) $(2-3i)$ d) $(2+3i)$
7.	If the orthogonal matrix A has eigenvalue λ, then _____ is also eigenvalue of A. a) 1 b) λ c) $1/\lambda$ d) λ^2
8.	The similar matrices have the same _____. a) characteristic equation b) eigenvectors c) non-diagonal values d) diagonal values
9.	The square matrix A of order n is diagonalizable if and only if it has n _____ eigenvectors. a) linearly dependent b) linearly distinct c) linearly independent d) none of these
10.	The sum of diagonal values of the coefficient matrix B of quadratic form $Q = 2(x_1x_2 + x_2x_3 + x_1x_3)$ is _____. a) 0 b) 1 c) 2 d) 3