

- 1) Which of the following condition is false for Row-echelon form?
 - a) All non-zero rows are above zero rows.
 - b) All non-zero rows are below zero rows.**
 - c) The leading coefficient of non-zero rows must be to the right of leading coefficient of row above it.
 - d) All elements in a column below leading coefficient is zero
- 2) The dot product of (2,2,4) and (1,-3,4) is _____.
 - a) 24
 - b) 10
 - c) 16
 - d) 12**
- 3) Norm of a vector (1,-2,3,4) is _____
 - a) $\sqrt{30}$**
 - b) 6
 - c) 30
 - d) $\sqrt{6}$
- 4) Which of the following is not property for inner product space?
 - a) $\langle x, x \rangle \geq 0$
 - b) $\langle x, x \rangle = 0$ if and only if $x = 0$.
 - c) $\langle x, y \rangle = \langle y, x \rangle$
 - d) $\langle x+y, z \rangle = \langle x, y \rangle + \langle x, z \rangle$**
- 5) following statement is true for norm on a vector space.
 - a) $\| \lambda x \| = |\lambda| \| x \|$**
 - b) $\| \lambda x \| \leq |\lambda| \| x \|$
 - c) $\| \lambda x \| \geq |\lambda| \| x \|$
 - d) $\| \lambda x \| > |\lambda| \| x \|$
- 6) The distance between (1, 3) and (9,1) is _____
 - a) $\sqrt{64}$
 - b) 64
 - c) $\sqrt{68}$**
 - d) $\sqrt{6}$
- 7) The angle between the vectors (1, 1) and (-3, 3) is ____
 - a) 30 degree
 - b) 45 degree
 - c) 60 degree
 - d) 90 degree**
- 8) Which of the following pair of vectors is orthogonal ?
 - a) (1, 2, 3), (1, 2, 3)
 - b) (1, 2, 3), (0, 2, 3)
 - c) (1, 0, 1), (0, 2, 0)**
 - d) (1, 1, 0), (0, 2, 0)
- 9) $|A - \lambda I| = 0$ is called _____
 - a) Linear equation
 - b) Characteristic equation**
 - c) Characteristic polynomial
 - d) Quadratic equation

- 10) In a complex number $z = x + iy$, if $x = 0$ then the number is called _____.
a) Purely irrational
b) Purely integer
c) Purely imaginary
d) Purely real
- 11) Modulus (absolute value) of $z = 5 + 4i$ is _____.
a) 41
b) -41
c) $\sqrt{41}$
d) $-\sqrt{41}$
- 12) Any complex number multiply by i , rotate the complex number by _____.
a) 90 degree
b) 180 degree
c) 270 degree
d) 360 degree
- 13) In GF(2) field, the value of $0 * 1 + 1 * 1 + 1$ is _____.
a) 0
b) 1
c) 2
d) Not defined
- 14) The vectors which lies along the same line or parallel lines are known as _____.
a) Like vectors
b) Equal vectors
c) Position vectors
d) Collinear vectors
- 15) The dot product of (1,2,4) and (4, 2,1) is _____.
a) 19
b) 12
c) $\sqrt{12}$
d) $\sqrt{19}$
- 16) A linear equation in the form $AX=B$, where $B \neq 0$ is called as _____.
a) Linear system
b) Homogenous system
c) Non-homogenous system
d) Saturated system
- 17) how many solutions does the equation $2x-5y=3$ have?
a) No solution
b) A single zero solution
c) Infinitely many solutions
d) Unique non-zero solution
- 18) If $(6,5,3) = a(1,0,0) + b(0,1,0) + c(0,0,1)$ then
a) $a = 5, b = 3, c = 6$
b) $a = 6, b = 5, c = 3$
c) $a = 3, b = 5, c = 6$
d) $a = 5, b = 6, c = 3$

- 19) If A and B are two matrices of same order and $A(B+C) = (AB)+(AC)$, this law is known as ____.
- a) **Distributive law**
 - b) Commutative law
 - c) Associative law
 - d) Crammer's law
- 20) Set of all linear combination of vectors is called ____.
- a) **Linear span**
 - b) Linearly dependent
 - c) Linearly independent
 - d) Subspace
- 21) Which of the following set is linearly independent?
- a) **$S = \{ (1,0), (0,1) \}$**
 - b) $S = \{ (1,1), (2,2) \}$
 - c) $S = \{ (1,2), (2,4) \}$
 - d) $S = \{ (3,6), (1,2) \}$
- 22) A non-empty subset W of V is said to be subspace if and only if
- a) **$ax + by \in W \forall x, y \in W, a, b \in \mathbb{R}$**
 - b) $ax - by \in W \forall x, y \in W, a, b \in \mathbb{R}$
 - c) $ax + by \notin W \forall x, y \in W, a, b \in \mathbb{R}$
 - d) $ax - by \notin W \forall x, y \in W, a, b \in \mathbb{R}$
- 23) The weight of the word 1001110 is ____.
- a) 2
 - b) 3
 - c) **4**
 - d) 5
- 24) If $x = 1011$, $y = 1011$ then $x \oplus y =$ ____.
- a) 1011
 - b) 1000
 - c) **0000**
 - d) 0001
- 25) If most of the element of a matrix have zero value is called ____ matrix.
- a) **Sparse**
 - b) Null
 - c) Nilpotent
 - d) Inverse