

mth105 List of Questions

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Q1 Calculate the distance between the points: A(0,1) and B(6,9)

- ☐ 5
- ☐ 7
- ☐ 10
- ☐ 14

Q2 Find the magnitude of the vector: $\sqrt{5i-12j}$

- ☐ 17
- ☐ 7
- ☐ -7
- ☐ 13

Q3 The addition of two vectors is defined by the

- ☐ spherical rule
- ☐ pythagoras rule
- ☐ triangular rule
- ☐ resultant rule

Q4 The absolute value of a vector is

- ☐ that negative number which is a measure of the length of the segment
- ☐ that positive number which is a measure of the length of the direction
- ☐ that number which measures the angle of the segment
- ☐ that positive number which is a measure of the length of the directed segment

Q5 A vector, PQ drawn from a fixed point P which gives the displacement of the point Q from the point P is called \vec{PQ} .

- ☐ End Vector
- ☐ Displacement Vector
- ☐ Drawing Vector
- ☐ Position Vector

Q6 The inverse of a matrix A is given by

- ☐ $A^{-1} = \frac{1}{|A|} \text{Adj } A$
- ☐ $A = \frac{1}{|A|} \text{Adj } A^{-1}$
- ☐ $|A| = \frac{1}{|A|} \text{Adj } A$
- ☐ $A^{-1} = \frac{1}{|A|} \text{Adj } A$

Q7 Quantity having magnitude only but no direction is called

- ☐ matrix
- ☐ scalar
- ☐ vector
- ☐ position

Q8 A physical quantity having magnitude and direction is known as

- ☐ matrix
- ☐ scalar

- vector
- position

Q9 For what value of k would the matrix $\begin{bmatrix} 2k+1 & 5 \\ 4 & 6 \end{bmatrix}$ be singular?

- ☐ 2
- ☐ -3
- ☐ -1
- ☐ 22

Q10 Let $A = \begin{bmatrix} 1 & 4 \\ 3 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 3 & 1 \\ 2 & k \end{bmatrix}$. Given that $|AB| = 121$, find the value of k .

- ☐ 2
- ☒ -3
- ☐ -1
- ☐ 22

Q11 Let $A = \begin{bmatrix} 1 & 4 \\ 3 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 3 & 1 \\ 2 & k \end{bmatrix}$ evaluate $|AB|$

- ☐ 22
- ☐ $\begin{bmatrix} 11 & 1+4k \\ 11 & 3+k \end{bmatrix}$
- ☐ $\begin{bmatrix} 3 & 4 \\ 6 & k \end{bmatrix}$
- ☒ 22-33k

Q12 What is the cofactor of element '-2' in $\begin{bmatrix} 2 & -4 & 1 \\ -2 & 5 & 0 \\ 3 & -3 & 4 \end{bmatrix}$

- ☐ 4
☐ 10
☒ 13
☐ -15

Q13 What is the cofactor of element '-3' in $\begin{bmatrix} 2 & -4 & 1 \\ -2 & 5 & 0 \\ 3 & -3 & 4 \end{bmatrix}$

- ☐ 4
☒ 2
☐ -3
☐ 0

Q14 Let $A = \begin{bmatrix} x & 2 & b \\ 2 & 3 & 4 \\ b & 4 & y \end{bmatrix}$, then A is ..

- ☐ upper triangular matrix
- ☒ Symmetric matrix
- ☐ Transpose of A
- ☐ diagonal matrix

Q15 Find the determinant of $\begin{bmatrix} 3 & 2 & 1 \\ -2 & 5 & 0 \\ 3 & -1 & 4 \end{bmatrix}$

- ☐ 31
- ☒ 63
- ☐ 16
- ☐ 27

Q16 If the inverse of matrix B exists, then it is

- ☐ united
- ☐ universal

- ☐ unique
- ☐ none of the options

Q17 The transpose of the cofactor matrix of a square matrix B is called the adjoint of B

- ☐ adjudged
- ☐ adjunct
- ☐ adjoint
- ☐ adjacent

Q18 Determinant is a number associated with $n \times n$ Matrices

- ☐ spherical
- ☐ triangular
- ☐ square
- ☐ rectangular

Q19 A square matrix is called lower triangular if all the elements above the main diagonal vanish

- ☐ upper triangular
- ☐ lower triangular
- ☐ vanisher
- ☐ square diagonal

Q20 Two matrices A and B are said to be conformable for multiplication if

- ☐ the number of columns of A is same as the number of rows in B
- ☐ the number of rows in A is same as the number of columns in B
- ☐ matrices A and B have same dimension
- ☐ matrices A and B have different orders

Q21 Two matrices are said to be equal

- ☐ if alternate elements are the
- ☐ equal if their corresponding elements are the same
- ☐ if corresponding elements in the rows are the same
- ☐ if corresponding column elements are the same

Q22 Any matrix of dimension (m x n) with all its elements equal to zero is called Zero Matrix

- ☐ Null
- ☐ Zero
- ☐ Void
- ☐ all of the options

Q23 A matrix same as its transpose is

- ☐ synthesis
- ☐ synthetic
- ☐ symbolic
- ☐ symmetric

Q24 A diagonal matrix having all its diagonal element as one (1) is

- ☐ identify
- ☐ identity
- ☐ ideology
- ☐ None of the options

Q25 A matrix having the same number of rows and columns is referred to as $n \times n$.. Matrix

- ☐ straight
- ☐ symmetric
- ☒ square
- ☐ singular

Q26 A rectangular array of numbers with reference to specific rules governing the array is known as

- ☐ Methodology
- ☒ Matrix
- ☐ Model
- ☐ Mathematical arrangement

Q27 The number of rows and the number of columns of a matrix determine its $n \times m$

- ☐ dimension
- ☐ size
- ☐ order
- ☒ all of the options

Q28 One of the following has truth value 'False'

- ☐ Ijebu-Ode is in Ogun State if and only if $4 + 3 = 7$
- ☒ Ijebu-Ode is in Ogun State if and only if $4 + 3 = 6$
- ☐ If Ijebu-Ode is in Ogun State then $4 + 3 = 7$
- ☐ Ijebu-Ode is the capital of Oyo State if and only if $4 + 3 = 7$

Q29 One of the following is not a connective in Logic

- ☐ Conjunction
- ☒ Disjunction
- ☐ Negation
- ☐ Bi-conditional implication

Q30 The True value of Bi-conditional statement would be true

- ☐ if one of the two statements has Truth Value 'true'
- ☐ if one of the two statements has Truth Value 'false'
- ☒ if the two statements have the same Truth Value
- ☐ if the two statements have opposite Truth Value

Q31 Let p and q be two simple statements , then the following are conditional statements except

- ☐ p is sufficient for q
- ☐ p only if q
- ☐ If p then q
- ☒ p if and only if q

Q32 All but one of the statements have truth value true

- ☐ Ibadan is the capital of Oyo State or $4 + 3 = 7$
- ☒ Ibadan is the capital of Oyo State or $4 + 3 = 6$
- ☐ Ibadan is the capital of Ogun State or $4 + 3 = 7$
- ☐ Ibadan is the capital of Oyo State and $4 + 3 = 7$

Q33 $p \rightarrow q$ statement is the use of connectives to combine two or more simple statements to

form just one

- ☐ Composite
- ☐ Combinatorial
- ☐ Connectives
- ☐ Concord

Q34 $\neg(p \wedge q) \rightarrow \neg p \vee \neg q$ occurs when the conjunction of a set of simple mathematical statements gives rise to another mathematical statement

- ☐ Conclusion
- ☐ Negation
- ☐ Argument
- ☐ Tautology

Q35 Expressions, phrases or symbols that are made used of, to join two or more simple statements together in order to form a compound statement are called $\neg, \wedge, \vee, \rightarrow, \leftrightarrow$

- ☐ Contradictions
- ☐ Connectives
- ☐ Supports
- ☐ Divider

Q36 A declarative sentences or an expression of words which are either true or false, but cannot be both is called

- ☐ Proposal
- ☐ Proposition
- ☐ Connectives
- ☐ Composite

Q37 One of these does not explain the objectives of logical reasoning

- ☐ It could be used to decode equivalent only
- ☐ It could be used to analyze a statement
- ☐ It could be used to ascertain or analyze complicated business argument
- ☐ It could be used to form composite statements from simple ones using logical connectives

Q38 The Truth value of the statement 'Ijebu-Ode is in Lagos State' is $\neg, \wedge, \vee, \rightarrow, \leftrightarrow$.

- ☐ Truth Value
- ☐ Logic
- ☐ True
- ☐ False

Q39 The study and analysis of a mathematical proposition as to ascertain the Truth Value of the proposition is known as $\neg, \wedge, \vee, \rightarrow, \leftrightarrow$

- ☐ Truth Value
- ☐ Logic
- ☐ True
- ☐ False

Q40 $\neg(p \wedge q) \rightarrow \neg p \vee \neg q$ can be used to depict or analyze the Truth Value of any mathematical statement

- ☐ Mathematical
- ☐ Logic

- False Value
- Truth Value Table