Matrices and its types

Sure, here are some multiple-choice questions (MCQs) related to matrices and their types, along with their answers:

\*\*Question 1: What is a matrix?\*\*

a) A mathematical equation

b) A rectangular arrangement of numbers

c) A type of geometry

d) A prime number

\*\*Answer: b) A rectangular arrangement of numbers\*\*

\*\*Question 2: How is the size of a matrix determined?\*\*

a) By the number of rows it has

b) By the number of columns it has

c) By the sum of its elements

d) By its determinant value

\*\*Answer: a) By the number of rows it has\*\*

\*\*Question 3: In a matrix, rows are arranged horizontally, and columns are arranged \_\_\_\_\_\_\_\_\_\_\_.\*\*

a) Vertically

b) Diagonally

c) Horizontally

d) Randomly

\*\*Answer: a) Vertically\*\*

\*\*Question 4: What is a square matrix?\*\*

a) A matrix with equal number of rows and columns

b) A matrix with different number of rows and columns

c) A matrix with only one row or column

d) A matrix that contains only zero elements

\*\*Answer: a) A matrix with equal number of rows and columns\*\*

\*\*Question 5: Which type of matrix has all its diagonal elements as zero?\*\*

a) Identity matrix

b) Diagonal matrix

c) Zero matrix

d) Transpose matrix

\*\*Answer: b) Diagonal matrix\*\*

\*\*Question 6: What is the identity matrix?\*\*

a) A matrix with all elements as ones

b) A matrix with all elements as zeros

c) A matrix with diagonal elements as ones and others as zeros

d) A matrix with diagonal elements as zeros and others as ones

\*\*Answer: c) A matrix with diagonal elements as ones and others as zeros\*\*

\*\*Question 7: What is the transpose of a matrix?\*\*

a) Flipping the matrix horizontally

b) Flipping the matrix vertically

c) Interchanging rows and columns

d) Changing all elements to their additive inverses

\*\*Answer: c) Interchanging rows and columns\*\*

\*\*Question 8: What is an orthogonal matrix?\*\*

a) A matrix with no orthogonal vectors

b) A matrix with orthogonal rows

c) A matrix with orthogonal columns

d) A matrix with orthogonal rows and columns

\*\*Answer: d) A matrix with orthogonal rows and columns\*\*

\*\*Question 9: When are two matrices considered equal?\*\*

a) When they have the same number of rows

b) When they have the same number of columns

c) When all their corresponding elements are equal

d) When their determinants are equal

\*\*Answer: c) When all their corresponding elements are equal\*\*

\*\*Question 10: What is a singular matrix?\*\*

a) A matrix with a single row or column

b) A matrix with all elements as zero

c) A matrix with a non-unique inverse

d) A matrix with no inverse

\*\*Answer: d) A matrix with no inverse\*\*

Algebra of Matrices (addition, subtraction, scalar multiplicationand multiplication)