HibColl Session 10

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| Question 1  Consider the following expression:  3 + 4x + 3x2 = 10  Is this a linear equation?  A) Yes  B) No | Question 2  If A and B are matrices of the same size then  A - B = B - A  A) TRUE  B) FALSE |
| Correct Answer: No. It is not a linear equation. | Feedback: The correct answer is FALSE. |
| Question 3  Suppose both m and n are positive integers.  An m x n matrix is a rectangular array  of real numbers with m columns and n rows.  A) TRUE  B) FALSE | Question 4  A is a 3x3 matrix.  Consider the following mathematical expression  AY=A   1. Y is the identity matrix 2. Y is a 3 x 3 matrix 3. Y does not exist, and no solution exists 4. AY is a 3 x 3 matrix   Select one of the following:   1. Only Statements are correct 2. Only Statement 1 and 4 are correct 3. Statements 1,2 and 4 are correct 4. Only statement 3 is correct |
| Feedback: The correct answer is FALSE.  The matrix has m rows and n columns. | Feedback: The correct answer is C) Statements 1,2 and 4 are correct. |
| Question 5  The identity matrix contains the values “1” in each cell on every row and column.  A)TRUE  B) FALSE | Question 6  The augmented matrix for matrix of coefficients A and the solution vector b is the (m+1) x n matrix (A:b)  A)TRUE  B) FALSE |
| Feedback: The correct answer is False | Feedback: The correct Answer is False |
| Question 7  ***B*** and ***C*** are ***2x2*** matrices. The following statement is always true?  ***BxC = CxB***  A)TRUE  B) FALSE | Question 8  Let M be an ***mxn*** matrix. Then an entry of M is said to be a leading entry if it is the first non-zero in some row.  A)TRUE  B) FALSE |
| Feedback : The correct answer is False  BxC is almost always different to CxB | Feedback: The correct answer is True  See definition 5.5 on page 78 of volume 2. |
| Question 9    What are elements of the top row of ***C2***?  A) 4,1  B) 4,-1  C) 4, 0  D) 4,-6 | Question 10  Consider the matrices B and C, given as      What are the dimensions of the matrix ***B x C*** ?   1. 2 x2 2. 2 x 3 3. 3 x 2 4. ***B x C*** can not be computed |
| Feedback: Correct Answer is option B 4, -1 | Feedback: Correct Answer is option B 2 rows x 3 Columns |
| Question 11      It is not possible to compute A x B, because the dimensions of the both matrices are incompatible.   1. True 2. False | Question 12  What is the outcome of the matrix addition ***A+B***? |
| Correct answer: False | Correct answer D |
| Question 13:  For a matrix to be in reduced echelon form, all rows which consist entirely of zeros are located at the bottom rows | Question 14:  For a matrix to be in reduced echelon form, all leading entries are equal to zero   1. TRUE 2. FALSE |
| Feedback: The correct answer is TRUE | Feedback: The correct answer is False  They are equal to one. |
| Question 15:  Suppose a matrix is in reduced echelon form.  If a column contains a leading entry then all entries in that column below the leading entry are one.   1. TRUE 2. FALSE | Question 16:  Suppose a matrix is in reduced echelon form.  In any two consecutive non-zero rows, the leading entry in the upper row occurs to the left of the leading entry in the lower row.  A) TRUE  B) FALSE |
| Feedback: The correct answer is False  They are equal to zero. | Feedback: The correct answer is TRUE see the top of page 79. |
| Question 17  There are three operations that may be performed on the rows of augmented matrices.  The interchanging of two columns is one of these operations.   1. TRUE 2. FALSE | Question 18  When performing row operations on the rows of augmented matrices.  The subtraction of one row from another is one of these operations.   1. TRUE 2. FALSE |
| Feedback: Correct Answer: FALSE | Feedback: Correct Answer: TRUE |
| Question 19  When performing Gaussian elimination, a unique solution to a system of equations is found using ***Forward Substitution***.  A) TRUE  B) FALSE | Question 20  Consider the system of linear equations.  1x + 1y + 2z = 9  1y + 2z = 6  1z = 2   1. x= 2, y=2, z=2 2. x=3, y=2, z=2 3. x=2, y=3, z=2 4. No unique solution exists. |
| The correct answer is FALSE: One would use back substitution. | Feedback: The correct answer is B |

Augmented Matrix

Gaussian Elimination

5.1.1

A directed walk in a digraph D is alternating sequences of Vertices and Arcs of the form

v1e1v2e2.......