Dashboard / My cou	urses / MA101 / Midsem / Midsem 1	
Started on	Friday, 8 January 2021, 5:00 PM	
State	Finished	
	Friday, 8 January 2021, 5:40 PM	
Time taken		
Grade	12.33 out of 30.00 (41 %)	
Question 1		
Incorrect		
Mark 0.00 out of 1.00		
Let $AX = b$ be a	linear system with dimension of $A=m imes n$ and $m>n$. Then	
o a. solution ma	y exists	
b. it never has	a solution.	×
o. it has infinit	ely many solutions	
Your answer is inco		
The correct answer		
solution may exists		
Question 2		
Correct		
Mark 1.00 out of 1.00		
Let $A_{5\times5}$ be a mat	rix of coefficients with 5 pivot columns. Then $AX=b$ has	
o a. solution dep	pends on $b.$	
ob. infinitely ma	any solutions	
o. unique solu	tion	~
d. no solution		
Your answer is cor	rect	
The correct answe	er is: unique solution	

Question 3

Correct

Mark 1.00 out of 1.00

Consider the matrix $A=\begin{bmatrix}1&1&0\\0&1&0\\0&0&0\end{bmatrix}$ Which of the following b in Col(A)?

- $\bigcirc \text{ a. } b = \begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix}$
- $b. b = \begin{bmatrix} 0 \\ 0 \\ 1 \end{bmatrix}$
- $\bigcirc \text{ c.} \qquad b = \begin{bmatrix} 1 \\ 1 \\ 0 \end{bmatrix}$

Your answer is correct.

The correct answers are:

$$b = \begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix}$$

 $b = \begin{bmatrix} 0 \\ 1 \end{bmatrix}$

$$b = \begin{bmatrix} 1 \\ 1 \\ 0 \end{bmatrix}$$

01/2022, 23:15 Midsem 1: Attempt review	
Question 4 Correct Mark 1.00 out of 1.00	
Mark 1.00 dut of 1.00	
Choose correct statements from following options	
a. Two matrices are row equivalent if they have the same number of rows.	
b. Elementary row operations on an augmented matrix never change the solution set of the associated linear system.	~
c. An inconsistent system has more than one solution.	
d. Two linear systems are equivalent if they have the same solution set.	~
Your answer is correct.	
The correct answers are: Elementary row operations on an augmented matrix never change the solution set of the associated linear system.,	
Two linear systems are equivalent if they have the same solution set.	
Question 5	
Incorrect Mark 0.00 out of 1.00	
Two vectors are linearly dependent if and only if they lie on a same line.	
Select one:	
□ True ★	
○ False	

The correct answer is 'False'.

Question 6

Incorrect

Mark 0.00 out of 1.00

Let W be the subset of \mathbb{R}^3 defined by $W = \{ \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} \in \mathbb{R}^3 \mid 6x_1 + 5x_2 + 6x_3 = 0 \}$ Which one of the following matrix A has

W = Nul(A), the null space of A.

- a. 6 6 6 6 5 5 5 6 6 6 6

• d.
$$\begin{bmatrix} 6 & 0 & 0 \\ 5 & 0 & 0 \\ 6 & 0 & 0 \end{bmatrix}$$
 < spanstyle =" font - size : 0.9375rem;">

Your answer is incorrect.

The correct answer is:

 $\begin{bmatrix} 6 & 5 & 6 \\ 6 & 5 & 6 \\ 6 & 5 & 6 \end{bmatrix}$

Question 7

Partially correct

Mark 0.33 out of 1.00

A linear transformation $T: \mathbb{R}^2 \longrightarrow \mathbb{R}^2$ first reflects points through the Y-axis(vertical axis) and then reflects points through the X-axis(horizontal axis). Then T is

- a. neither one-to-one nor onto
- b. bijective
- c. one-to-one
- d. onto

Your answer is partially correct.

You have correctly selected 1.

The correct answers are:

one-to-one,

onto,

bijective

Question 8	
Incorrect	
Mark 0.00 out of 1.00	
Let i be the last digit of your student id (eg. student with id 201851002, i=2).	
Consider following linear system	
$x_1 + 3x_3 = 3$	
$2x_1 + x_2 + 6x_3 = 2$	
$x_1 + ix_3 = i$	
Choose correct statements	
a. The linear system is consistent.	
□ b. There is no solution to the system.	
$\ensuremath{ arphi }$ c. Existence of solution depends on i .	×
d. The linear system has infinitely many solutions.	
Your answer is incorrect.	
The correct answers are:	
The linear system is consistent.,	
The linear system has infinitely many solutions.	
Question 9	
Incorrect	
Mark 0.00 out of 1.00	
Suppose $\{u,v,w\}\subseteq\mathbb{R}^3$ is a linearly independent set and $A=[u\ v\ w\ 0]$ (columns of A are u, v, w and zero vector). Then the linear transformation T whose standard matrix is A is	
a. One-to-one	×
b. neither one-to-one nor onto	
□ c. Onto	
□ d. bijective	
Your answer is incorrect.	
The correct answer is:	
Onto	

Question 10

Incorrect

Mark 0.00 out of 1.00

Let AX = b be a linear system with dimension of $A = m \times n$ with m < n. Then

- a. it never has a solution.
- b. solution may not exists
- c. it has infinitely many solutions

×

Your answer is incorrect.

The correct answer is: solution may not exists

Question 11

Incorrect

Mark 0.00 out of 1.00

Rank of the matrix $A = \begin{bmatrix} 1 & 3 & 0 & 3 \\ -1 & -1 & -1 & 1 \\ 0 & -4 & 2 & -8 \\ 2 & 0 & 3 & -1 \end{bmatrix}$. Then rank of A is equal to

- a. 3
- b. 4

×

- o c. 2
- o d. 1
- e. 0

Your answer is incorrect.

The correct answer is:

3

1/2022, 23:15	Midsem 1: Attempt review	
Question 12		
Incorrect		
Mark 0.00 out of 1.00		
Choose correct sentences		
a. Row echelon form of a matrix is always unique.		×
$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	nsistent linear system then it has infinitely many solutions.	
c. If one row in a row echelon form of an augmented ma solutions.	trix is [0 0 0 0 0], then the associated linear system has infinitely many	
d. If one row in a row echelon form of an augmented ma	trix is [0 0 0 0 5], then the associated linear system does not have solution	on.
e. Elementary column operations on augmented matrix of	does not affect solution space of a linear system.	×
Your answer is incorrect.		
The correct answers are:		
	0 0 0 0 5], then the associated linear system does not have solution. ,	
If no. of variables is less than no. of equations of a consisten	nt linear system then it has infinitely many solutions.	
Question 13		
Incorrect		
Mark 0.00 out of 1.00		
If a linear transformation $T:\mathbb{R}^3\longrightarrow\mathbb{R}^5$ is one-to-one with	n standard matrix A, then A has	
 a. The rank is three and the nullity is zero. 		
o b. we can not say anything about rank and nullity.		
c. The rank is five and the nullity is two.		
d. The rank is two and the nullity is three.		×
Your answer is incorrect.		
The correct answer is:		
The rank is three and the nullity is zero.		

Question 14 Correct
Mark 1.00 out of 1.00
Rank of a non-zero matrix of size 10×1 is
○ b. 0
O c. 10
Your answer is correct.
The correct answer is: 1
Question 15
Correct
Mark 1.00 out of 1.00
Basis for Col (A), where (A) is the following matrix [\left[
○ b. [
○ c. [
Your answer is correct.
The correct answer is:
[\left[\begin\array\c\6\3\\0\end\array\right],\left[\begin\array\c\2\\4\\0\end\array\\right],\left[\begin\array\c\2\\4\\0\end\array\\right],\left[\begin\array\c\3\\1\\3\\1\\\\\\\\\\\\\\\\\\\\\\\\\\

Question 16
Incorrect Mark 0.00 out of 1.00
For a matrix P=\left[\begin{array}{cc} A&C\\ B & D \end{array} \right], where A, D are square matrices, choose correct options
a. $\rightarrow \det(P) = \det(A - CD^{-1}B)\det(D)$
\Box b. If det(A) and det(D) are non-zero and \bigcirc then P is invertible.
\Box c. \supseteq $\underline{\det(P) = \det(A - BD^{-1}C)\det(D)}$
☑ d. If det(A) and det(D) are non-zero then P is invertible. ★
Your answer is incorrect.
The correct answers are: $\angle det(P) = det(A - CD^{-1}B) det(D)$,
If $det(A)$ and $det(D)$ are non-zero and $\mathbb{Z}_{C=0}$ then P is invertible.
Question 17
Correct
Mark 1.00 out of 1.00
Let A=\left[\begin{array}{cccc} 1&0&0&1\\ 0&2&3&4\\0&0&5&1\\2&0&0&1 \end{array}\right]. Then det(A)=
○ a. 4
○ b. 0
○ d. 10
Your answer is correct.
The correct answer is:
-10
Question 18 Correct
Mark 1.00 out of 1.00
If <u>W 1=\{\left[\begin{array}{c} x 1\\x 2\\x 3 \end{array}\right] \in \mathbb{R}^3\ 6x 1+5x 2+6x 3=0 \}</u> and
W 2=\{\left[\begin{array}\c\ x 1\\x 2\\x 3 \end\{array}\right] \in \mathbb\{R}^3\ x 1=0 \text\{ and } 5x 2+6x 3=0 \} are subspaces then
<u>W 1\displaystyle \cup W 2</u> is a subspace.
Select one:
True ✓
○ False
The correct answer is 'True'.

Question 19
Correct Mark 100 put of 100
Mark 1.00 out of 1.00
$W=\frac{\left(\frac{hegin{array}{c} a\b \ c \right)}{a}}{a}}{a}$ is a
subspace of mathbb{R}^3
Select one:
○ True
False ✓
The correct answer is 'False'.
Question 20
Incorrect
Mark 0.00 out of 1.00
Let $\boxed{\underline{u}=\left(\frac{1-5}{2}\right)^2} = \frac{1-5}{2}$ and $\boxed{\underline{array}(c)^2} = \frac{1-5}{2}$
<u>w—nert[toegin(anay, (c) 41/7)[-12 ferio(anay, fright]</u> .
Select one:
○ True
● False ★
The correct answer is 'True'.
Question 21
Incorrect
Mark 0.00 out of 1.00
Let is be the last digit of your student id modulo 5 and \textbf{\left[\begin\{array\\c\} 1\\1 \\0 \end\{array\\right]}. Then \textbf{\u, v\} is linearly
independent set.
Select one:
○ True
The correct answer is 'True'.

Question 22
Correct
Mark 1.00 out of 1.00
Let <u>A=[a_{ij}]_{2\times 2}, a_{ij}=i+j</u> . Then A is row equivalent to identity matrix.
Select one:
True ✓
○ False
The correct answer is 'True'.
Question 23
Incorrect
Mark 0.00 out of 1.00
Let \sum_i be the last digit of your student id. Suppose we choose a set of \sum_{i+1} vectors in \sum_{i+1} then it is always linearly independent.
Select one:
True ▼
○ False
The correct answer is 'False'.
Question 24
Incorrect 4.4.0.0
Mark 0.00 out of 1.00
Choose correct statements from below
■ a. For a matrix $A_{m\times n}$, $Col(A)$ is a subspace of $A_{m\times n}$
b. Let ☐ T:\mathbb{R}^2 \to \mathbb{R}^2 \to \mathbb{R}^3 be one to one linear transformation then image of line under ☐ is a line in
☐ c. Homogeneous system is always consistent.
□ d. For a matrix \mathbb{Z}_{A} $\{m \in n\}$, $m < n$ with $\mathbb{Z}_{Row(A)=\mathbb{Z}_{A}}$ implies that $\mathbb{Z}_{AX=b}$ is consistent for any vector b.
d. For a matrix $A_{m\times n}$ with $A_{n\times n}$ with $A_{n\times n}$ implies that $A_{n\times n}$ is consistent for any vector b. Your answer is incorrect. The correct answers are:
d. For a matrix $A_{M\times n}$ with $A_{Row(A)=\mathbb{R}^n}$ implies that $A_{A\times b}$ is consistent for any vector b. Your answer is incorrect.

Incorrect
Mark 0.00 out of 1.00
Every elementary row operation is reversible.
a. False
○ b. True
c. depends on row operation.
Your answer is incorrect.
The correct answer is:
True
Question 26
Correct
Mark 1.00 out of 1.00
What can you say about Co (B) when B is a 5x4 matrix with linearly independent columns?
,,
a. Col (B) is a proper subspace of mathbb(R)^5.
○ b. Col <mark>≥(B)=\mathbb{R}^5</mark> .
○ c. Co (B) is isomorphic to mathbb{R}^4.
○ c. Co (B) is isomorphic to mathbb{R}^4.
 C. Co (B) is isomorphic to (Mathbb{R}^4.) d. Co (B)=\{0 \}.
○ d. Col (B)=\{0\}.
○ d. Col⊋(B)=\{0\}. Your answer is correct.
○ d. Col⊋(B)=\{0 \}. Your answer is correct. The correct answers are:
○ d. Col⊋(B)=\{0\}. Your answer is correct.
○ d. Col⊋(B)=\{0 \}. Your answer is correct. The correct answers are:
○ d. Col⊋(B)=\{0 \}. Your answer is correct. The correct answers are:
Od. Col (B)=1{01}. Your answer is correct. The correct answers are: Co (B) is a proper subspace of (Mathbb{R}^5.)
Od. Col (B)=\{0\}. Your answer is correct. The correct answers are: Col (B) is a proper subspace of \(\text{\text{\text{\mathbb{\capax}\choose}}}\).

Question 27 Correct Mark 1.00 out of 1.00
What is the rank of A=\left[\begin{array}(ccc) 1& 2 & 3\\ 0 & 1& 3\\ 0 & 2 & 5 \end{array}\right]
Answer: 3 ✓
The correct answer is: 3
Question 28
Incorrect Mark 0.00 out of 1.00
Let A=\left[\begin{array}{cccc} 1&3&0&3\\ -1&-1&-1&1\\0&-4&2&-8\end{array}\right]. For which values of b, AX=b has a solution? Choose most correct option.
 a. For all <u>b</u> which are linear combination of first and third column.
○ b. Ax=b has a solution if b=\left[\begin{array}{c} 4\\ -2 \\4 \end{array}\right]
o. For all <u>b</u> which are linear combination of first and second column.
○ d. for all <u>b\in \mathbb{R}^3</u>
Your answer is incorrect.
The correct answer is: For all which are linear combination of first and second column.
Question 29
Incorrect Mark 0.00 out of 1.00
Mark 0.00 dut di 1.00
If a set contains fewer vectors than there are entries in the vectors, then the set is linearly independent.
Select one:
True True True True True True True True True True True True True True True True True True T
○ False
The correct answer is 'False'.

Midsem 2 (online 10%) ▶