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NPTEL

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Unit 5 - Week 4 : unit 4

Week 4 : Assignment 4

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment. **Due on 2018-09-05, 23:59 IST.**

1) ***1 point***

If $A.x = b$ has infinite solution $A.x_p = b$ is the particular solutionthen any solution x expressed as

- a) $x = x_p + N(A)$
- b) $x = x_p + C(A^T)$
- c) $x = x_p + N(A^T)$
- d) None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
a) $x = x_p + N(A)$

2) ***1 point***

If $A = \begin{bmatrix} 1 & 2 \\ 2 & 4 \end{bmatrix}$, find Nullspace of vector A (i. e $N(A)$)

- a) $\begin{bmatrix} -2 \\ 1 \end{bmatrix}$
- b) $\begin{bmatrix} 2 \\ 1 \end{bmatrix}$
- c) $\begin{bmatrix} 0 \\ 0 \end{bmatrix}$
- d) $\begin{bmatrix} 2c \\ d \end{bmatrix}$

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3) *1 point*

If x_1 & x_2 are two independent null space vectors of A then any vector in $N(A)$ can b expressed as

a) C_1x_1

b) $C_1x_1 + x_2$

c) $C_1x_1 + C_2x_2$

d) $x_1 - C_2x_2$

No, the answer is incorrect.
Score: 0

Accepted Answers:
c) $C_1x_1 + C_2x_2$

4) *1 point*

A_{n*n} in echelon matrix for gives m non-zero pivots. How many independent vectors a required to describe $N(A)$

a) m

b) n

c) n-m

d) m-n

No, the answer is incorrect.
Score: 0

Accepted Answers:
c) n-m

5) *1 point*

Two vectors are given as $\begin{bmatrix} a \\ b \\ c \end{bmatrix}$ and $\begin{bmatrix} d \\ e \\ f \end{bmatrix}$ .They are linearly dependent vectors if

a) a/d= b/e

b) a+d=b-e=c+f

c) ad=be=cf

d) a,b,c are all zero

No, the answer is incorrect.
Score: 0

Accepted Answers:
d) a,b,c are all zero

6) If A has all independent column, what can be said A.x=b *0 points*

a) Unique solution

b) Solution exists for certain condition of b

c) Infinite solution

d) None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
a) Unique solution

7) If subspace in R^n has m basis vectors. then **1 point**

a) m≥n

b) m ≤ n

c) m+n=∞

d) m=n only

No, the answer is incorrect.
Score: 0

Accepted Answers:
b) m ≤ n

8) **1 point**

The span of three vectors $\begin{bmatrix}0\\1\\1\end{bmatrix}, \begin{bmatrix}1\\1\\0\end{bmatrix}$ *and* $\begin{bmatrix}0\\0\\0\end{bmatrix}$ gives

a) Subspace of R^3 or solid

b) Subspace of R^1 or line

c) Subspace of R^2 or plane

d) None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
d) None of the above

9) **1 point**

$Ax = b$ with $A = \begin{bmatrix}1 & 0 & 2 & 3\\1 & 3 & 2 & 0\\2 & 0 & 4 & 9\end{bmatrix}, x = \begin{bmatrix}x_1\\x_2\\x_3\\x_4\end{bmatrix}$ *and* $b = \begin{bmatrix}2\\5\\10\end{bmatrix}$

Find the complete solution ($x = x_n + x_p$).

a) $x = \begin{bmatrix}0\\3\\0\\2\end{bmatrix} + x_3 \begin{bmatrix}-2\\0\\1\\0\end{bmatrix}$

b) $x = \begin{bmatrix}-4\\3\\0\\2\end{bmatrix} + x_3 \begin{bmatrix}-2\\0\\1\\0\end{bmatrix}$

c) $x = \begin{bmatrix}4\\3\\0\\2\end{bmatrix} + x_3 \begin{bmatrix}-2\\0\\1\\0\end{bmatrix}$

d) $x = \begin{bmatrix} 3 \\ 0 \\ 2 \\ 0 \end{bmatrix} + x_3 \begin{bmatrix} -2 \\ 0 \\ 1 \\ 0 \end{bmatrix}$

No, the answer is incorrect.
Score: 0

Accepted Answers:

b) $x = \begin{bmatrix} -4 \\ 3 \\ 0 \\ 2 \end{bmatrix} + x_3 \begin{bmatrix} -2 \\ 0 \\ 1 \\ 0 \end{bmatrix}$

10 Check whether Ax=b is solvable ***1 point***

$$A = \begin{bmatrix} 1 & 2 & 3 & 5 \\ 2 & 4 & 8 & 12 \\ 3 & 6 & 7 & 13 \end{bmatrix} \quad b = \begin{bmatrix} 2 \\ 2 \\ 5 \end{bmatrix}$$

(a) Solvable with infinite solution

(b) Solvable with unique solution

(c) No solution

(d) b must be in R^4

No, the answer is incorrect.
Score: 0

Accepted Answers:
(c) No solution

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