

X

reviewer1@nptel.iitm.ac.in ▼

Courses » Virtual Reality Engineering

Announcements

Course

Ask a Question

Progress

Unit 2 - Week 0 - Self Assessment

Course outline

How to access the portal

Week 0 - Self Assessment

- Quiz :
Assessment Test for Virtual Reality Engineering

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

Week 9

Week 10

Week 11

Week 12

DOWNLOAD VIDEOS

Assessment Test for Virtual Reality Engineering

The due date for submitting this assignment has passed. **Due on 2018-01-21, 23:59 IST.**

Submitted assignment

Please note that these marks will not affect your overall course grade. It is purely for self assessment.

This is a test to freshen up your skills for the course. These marks will not affect your overall course grade.

1) Compute product AB for the given matrices

1 point

$$A = \begin{bmatrix} 1 & 3 & 2 \\ 2 & 5 & 1 \end{bmatrix} \quad B = \begin{bmatrix} 4 & 1 \\ 3 & 2 \\ 6 & 1 \end{bmatrix}$$

a $\begin{bmatrix} 25 & 9 \\ 29 & 13 \end{bmatrix}$

b $\begin{bmatrix} 25 & 3 \\ 3 & 15 \end{bmatrix}$

c $\begin{bmatrix} 11 & 32 \\ 2 & 15 \end{bmatrix}$

d $\begin{bmatrix} 25 & 3 \\ 29 & 13 \end{bmatrix}$

No, the answer is incorrect.

Score: 0

Accepted Answers:

a $\begin{bmatrix} 25 & 9 \\ 29 & 13 \end{bmatrix}$

2) For the following matrices A and B, find $A^T * B^T$

1 point

$$A = \begin{bmatrix} 3 & 4 & 2 \\ 3 & 1 & 1 \\ 1 & 3 & 4 \end{bmatrix} \quad B = \begin{bmatrix} 3 & 3 & 2 \\ -1 & -6 & 1 \\ 2 & 6 & 4 \end{bmatrix}$$

a. $\begin{bmatrix} 20 & -20 & 28 \\ 2 & 3 & 2 \\ 1 & 4 & 2 \end{bmatrix}$ b. $\begin{bmatrix} 20 & 2 & 28 \\ 21 & 7 & 6 \\ 7 & -4 & 6 \end{bmatrix}$ c. $\begin{bmatrix} 20 & -20 & 28 \\ 21 & -7 & 26 \\ 17 & -4 & 26 \end{bmatrix}$ d. $\begin{bmatrix} 0 & 2 & 6 \\ 1 & 7 & 6 \\ 7 & 14 & 2 \end{bmatrix}$

a

b

c

d

No, the answer is incorrect.

Score: 0

Accepted Answers:

c

3) For the given matrices A and B, compute $(2A)^T - (3B)^T$

1 point

$$A = \begin{bmatrix} 3 & 4 & 2 \\ 3 & 1 & 1 \\ 1 & 3 & 4 \end{bmatrix} \quad B = \begin{bmatrix} 3 & 3 & 2 \\ -1 & -6 & 1 \\ 2 & 6 & 4 \end{bmatrix}$$

a. $\begin{bmatrix} 3 & 4 & 2 \\ 1 & 6 & 1 \\ 5 & 6 & 4 \end{bmatrix}$ b. $\begin{bmatrix} -3 & 9 & -4 \\ -1 & 20 & -12 \\ -2 & -1 & -4 \end{bmatrix}$ c. $\begin{bmatrix} 3 & 2 & 2 \\ 1 & 3 & 1 \\ 5 & 3 & 4 \end{bmatrix}$ d. $\begin{bmatrix} 1 & 1 & 3 \\ 1 & 3 & 3 \\ -2 & -4 & 8 \end{bmatrix}$

a

b

c

d

No, the answer is incorrect.

Score: 0

Accepted Answers:

b

4) For the following matrices A and B, check if $(A + B)^T = A^T + B^T$, and what is the value of $(A + B)^T$?

1 point

$$A = \begin{bmatrix} 3 & 4 & 2 \\ 3 & 1 & 1 \\ 1 & 3 & 4 \end{bmatrix} \quad B = \begin{bmatrix} 3 & 3 & 2 \\ -1 & -6 & 1 \\ 2 & 6 & 4 \end{bmatrix}$$

a. $\begin{bmatrix} 3 & 2 & 2 \\ 1 & 3 & 1 \\ 5 & 3 & 4 \end{bmatrix}$ b. $\begin{bmatrix} 1 & 1 & 3 \\ 1 & 3 & -3 \\ -2 & -4 & -4 \end{bmatrix}$ c. $\begin{bmatrix} 3 & 5 & 2 \\ 1 & 0 & 1 \\ 5 & 6 & 4 \end{bmatrix}$ d. $\begin{bmatrix} 6 & 2 & 3 \\ 7 & -5 & 9 \\ 4 & 2 & 8 \end{bmatrix}$

a

b

c

d

No, the answer is incorrect.

Score: 0

Accepted Answers:

d

5) For the given matrices, check if $3(AB) = (3A)B = A(3B)$ and what is the value of $3AB$?

1 point

$$A = \begin{bmatrix} 3 & 4 & 2 \\ 3 & 1 & 1 \\ 1 & 3 & 4 \end{bmatrix} \quad B = \begin{bmatrix} 3 & 3 & 2 \\ -1 & -6 & 1 \\ 2 & 6 & 4 \end{bmatrix}$$

a. $\begin{bmatrix} 27 & -9 & 54 \\ 30 & 27 & 33 \\ 24 & 27 & 63 \end{bmatrix}$ b. $\begin{bmatrix} 13 & 2 & 2 \\ 1 & 13 & 1 \\ 5 & 3 & 4 \end{bmatrix}$ c. $\begin{bmatrix} 1 & 1 & 3 \\ 1 & 3 & 3 \\ -2 & 4 & 4 \end{bmatrix}$ d. $\begin{bmatrix} 3 & 4 & 2 \\ 1 & 6 & 1 \\ 5 & 6 & 4 \end{bmatrix}$

a

- b
 c
 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

a

6) For the following matrices, check if $(AB)^T = B^T * A^T$ and what is the value of $(AB)^T$

1 point

$$A = \begin{bmatrix} 3 & 4 & 2 \\ 3 & 1 & 1 \\ 1 & 3 & 4 \end{bmatrix} \quad B = \begin{bmatrix} 3 & 3 & 2 \\ -1 & -6 & 1 \\ 2 & 6 & 4 \end{bmatrix}$$

a. $\begin{bmatrix} 3 & 12 & 21 \\ 11 & 3 & 10 \\ 15 & 3 & 4 \end{bmatrix}$ b. $\begin{bmatrix} 3 & 4 & 2 \\ 1 & 6 & 1 \\ 5 & 6 & 4 \end{bmatrix}$ c. $\begin{bmatrix} 9 & 10 & 8 \\ -3 & 9 & 9 \\ 18 & 11 & 21 \end{bmatrix}$ d. $\begin{bmatrix} 1 & 1 & 3 \\ 1 & 3 & -3 \\ -2 & -4 & -4 \end{bmatrix}$

- a
 b
 c
 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

c

7) Express the given matrix as a sum of symmetric matrix and a skew symmetric matrix.

$$A = \begin{bmatrix} 4 & 2 & -3 \\ 1 & 3 & -6 \\ -5 & 0 & -7 \end{bmatrix}$$

hint: $((A + A^T) + (A - A^T))/2$

a. $\begin{bmatrix} 8 & 1 & -4 \\ 1 & 3 & 3 \\ -4 & -3 & 7 \end{bmatrix} + \begin{bmatrix} 0 & 0.5 & 1 \\ -0.5 & 0 & -3 \\ -1 & 3 & 0 \end{bmatrix}$

b. $\begin{bmatrix} 4 & 1.5 & -4 \\ 0.5 & 3 & -3 \\ -4 & -3 & -7 \end{bmatrix} + \begin{bmatrix} 0 & 0.5 & 1 \\ -0.5 & 5 & -3 \\ -1 & 3 & 0 \end{bmatrix}$

c. $\begin{bmatrix} 4 & -1.5 & 4 \\ 1.5 & -3 & 3 \\ -4 & 3 & 7 \end{bmatrix} + \begin{bmatrix} 0 & 0.5 & 1 \\ -0.5 & -1 & -3 \\ -1 & 3 & 0 \end{bmatrix}$

d. $\begin{bmatrix} 4 & 1.5 & -4 \\ 1.5 & 3 & -3 \\ -4 & -3 & -7 \end{bmatrix} + \begin{bmatrix} 0 & 0.5 & 1 \\ -0.5 & 0 & -3 \\ -1 & 3 & 0 \end{bmatrix}$

- a
 b
 c
 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

d

8) Check whether the inverse of the given matrix exist, and if it exist find its inverse **1 point**

$$A = \begin{bmatrix} 1 & 1 & 3 \\ 1 & 3 & -3 \\ -2 & -4 & -4 \end{bmatrix}$$

a. $\begin{bmatrix} 0.25 & 1.75 & 1.5 \\ -1.25 & -0.25 & -0.75 \\ 0.5 & -0.25 & -0.25 \end{bmatrix}$

b. $\begin{bmatrix} 3 & 1 & 1.5 \\ -1.25 & -0.25 & -0.75 \\ -0.25 & -0.25 & -0.25 \end{bmatrix}$

c. $\begin{bmatrix} 0.75 & 0.1 & 0.5 \\ -1.25 & -0.25 & -0.5 \\ -0.25 & -0.5 & -0.25 \end{bmatrix}$

d. $\begin{bmatrix} 3 & 1 & 1.5 \\ -1.25 & 0.25 & -0.75 \\ -0.25 & 0.25 & -0.25 \end{bmatrix}$

- a
 b
 c
 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

b

9) Using the matrices given below, find matrix B. **1 point**

$$A = \begin{bmatrix} 3 & 2 & 2 \\ 1 & 3 & 1 \\ 5 & 3 & 4 \end{bmatrix}$$

and the product

$$AB = \begin{bmatrix} 3 & 4 & 2 \\ 1 & 6 & 1 \\ 5 & 6 & 4 \end{bmatrix}$$

a. $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

b. $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

c. $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

d. $\begin{bmatrix} 1 & 1 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

hint: $B = (AB) * A^{-1}$

- a
 b
 c
 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

b

10) Consider two sensors (A&B) which have measured a parameter 'X' for three trials, as given in the table. The actual value of X is 4.3256. **1 point**

	Sensor A	Sensor B
Trial 1	3.9852	4.3251
Trial 2	3.9851	3.9943
Trial 3	3.9852	4.2532

which of the following is correct?

- Sensor A has more accuracy than Sensor B

- Sensor A has more precision than Sensor B
- Sensors A and B have more accuracy
- Sensors A and B have more precision

No, the answer is incorrect.

Score: 0

Accepted Answers:

Sensor A has more precision than Sensor B

11) Match the following,

1 point

a. Resolution	1. Converts one form of energy into another
b. Transducer	2. Smallest change in measured value to which sensor will respond
c. Sensor	3. Adjusting the accuracy of the measuring instrument with reference to the standard value
d. Sensitivity	4. Converts one form of energy into electrical form
e. Calibration	5. Ratio of response of the sensor to the change in input

- a-2, b-3, c-5, d-1, e-4
- a-1, b-4, c-2, d-5, e-3
- a-2, b-1, c-4, d-5, e-3
- a-5, b-1, c-4, d-2, e-3

No, the answer is incorrect.

Score: 0

Accepted Answers:

a-2, b-1, c-4, d-5, e-3

End

© 2014 NPTEL - Privacy & Terms - Honor Code - FAQs -



A project of



In association with



Funded by

Government of India
Ministry of Human Resource Development

Powered by

