6406532467941. ✖ return "Hello, {user_name}!"

Question Number : 133 Question Id : 640653737405 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

Match the URLs in column A with their correct rendered output in Column B with the correct app.py code for the flask application given in the previous question.

Column A	Column B
1. http://127.0.0.1:5000/greet?name=MADI&guest=MADII	a. **Hello, Guest!**
2. http://127.0.0.1:5000/greet?name=MADII&guest=MADI	b. **Hello, MADII!**
3. http://127.0.0.1:5000/greet?	c. **Hello, Guest!**
4. http://127.0.0.1:5000/greet?guest=MADI	d. **Hello, MADI!**

Options :

6406532467942. ✖ 1-b, 2-d, 3-a, 4-c

6406532467943. ✖ 1-b, 2-a, 3-c, 4-d

6406532467944. ✔ 1-d, 2-b, 3-a, 4- c

6406532467945. ✖ 1-d, 2-a, 3-c, 4-b

MLF

Section Id : 64065351357

Section Number : 9

Section type : Online

Mandatory or Optional : Mandatory

Number of Questions : 11

Number of Questions to be attempted :	11
Section Marks :	40
Display Number Panel :	Yes
Section Negative Marks :	0
Group All Questions :	No
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	640653107630
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 134 Question Id : 640653737411 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 0

Question Label : Multiple Choice Question

THIS IS QUESTION PAPER FOR THE SUBJECT "DIPLOMA LEVEL : MACHINE LEARNING FOUNDATIONS (COMPUTER BASED EXAM)"

ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?
CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.

(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)

Options :

6406532467966. ✔ YES

6406532467967. ✖ NO

Sub-Section Number :	2
Sub-Section Id :	640653107631

Question Shuffling Allowed : No

Is Section Default? : null

Question Id : 640653737412 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (135 to 136)

Question Label : Comprehension

Let $A = \begin{pmatrix} 1 & 2 & 3 \\ -1 & -2 & -3 \\ 2 & 5 & 6 \end{pmatrix}$ be an 3 x 3 matrix. Based on this information, answer the given subquestions:

Sub questions

Question Number : 135 Question Id : 640653737413 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4

Question Label : Multiple Choice Question

Find the row space of matrix *A*.

Options :

6406532467968. ✖ $\text{span}\left\{\begin{pmatrix} 1 \\ -1 \\ 2 \end{pmatrix}, \begin{pmatrix} 2 \\ -2 \\ 5 \end{pmatrix}\right\}$

6406532467969. ✔ $\text{span}\left\{\begin{pmatrix} 1 \\ 0 \\ 3 \end{pmatrix}, \begin{pmatrix} 0 \\ 1 \\ 0 \end{pmatrix}\right\}$

6406532467970. ✖ $\text{span}\left\{\begin{pmatrix} 1 \\ 2 \\ 3 \end{pmatrix}, \begin{pmatrix} 0 \\ 1 \\ 0 \end{pmatrix}\right\}$

6406532467971. ✖ $\text{span}\left\{\begin{pmatrix}1\\2\\3\end{pmatrix},\begin{pmatrix}-1\\-2\\-3\end{pmatrix},\begin{pmatrix}2\\5\\6\end{pmatrix}\right\}$

Question Number : 136 Question Id : 640653737414 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

Find the column space of matrix *A*.

Options :

6406532467972. ✔ $\text{span}\left\{\begin{pmatrix}1\\-1\\2\end{pmatrix},\begin{pmatrix}2\\-2\\5\end{pmatrix}\right\}$

6406532467973. ✖ $\text{span}\left\{\begin{pmatrix}1\\0\\3\end{pmatrix},\begin{pmatrix}0\\1\\0\end{pmatrix}\right\}$

6406532467974. ✖ $\text{span}\left\{\begin{pmatrix}1\\-1\\2\end{pmatrix},\begin{pmatrix}2\\-2\\5\end{pmatrix},\begin{pmatrix}3\\-3\\6\end{pmatrix}\right\}$

6406532467975. ✖ $\text{span}\left\{\begin{pmatrix}1\\2\\3\end{pmatrix},\begin{pmatrix}-1\\-2\\-3\end{pmatrix},\begin{pmatrix}2\\5\\6\end{pmatrix}\right\}$

Sub-Section Number :	3
Sub-Section Id :	640653107632
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 137 Question Id : 640653737417 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

Let $A = \begin{bmatrix} 1 & 2 \\ 0 & 3 \end{bmatrix}$. Find a matrix P such that $P^{-1}AP$ is diagonal.

Options :

6406532467984. ✖ $\begin{bmatrix} 1 & 0 \\ 2 & 3 \end{bmatrix}$

6406532467985. ✔ $\begin{bmatrix} 1 & 1 \\ 1 & 0 \end{bmatrix}$

6406532467986. ✖ $\begin{bmatrix} 1 & 1 \\ -1 & 0 \end{bmatrix}$

6406532467987. ✖ $\begin{bmatrix} -2 & -2 \\ 0 & 0 \end{bmatrix}$

Question Number : 138 Question Id : 640653737423 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

Which of the following is the best approximation of $\sqrt[4]{16.1}$? (Use linear approximation around 16).

Options :

6406532468005. ✖ 2.1

6406532468006. ✔ 2.003125

6406532468007. ✖ 2.031

6406532468008. ✖ 1.9968

Sub-Section Number : 4

Sub-Section Id : 640653107633

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 139 Question Id : 640653737418 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4

Question Label : Multiple Choice Question

Find the best fit line for the dataset given below using least squares method.

x	0	2	3	6	8
y	-2	5	3	1	-3

Options :

6406532467988. ✖ $\hat{y} = 0.6x - 3.2$

6406532467989. ✔ $\hat{y} = -0.6x + 3.2$

6406532467990. ✖ $\hat{y} = -x + 2.8$

6406532467991. ✖ $\hat{y} = -0.4x + 2.8$

Question Number : 140 Question Id : 640653737419 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4

Question Label : Multiple Choice Question

Let $f : \mathbb{R}^2 \to \mathbb{R}$ be a multivariable scalar-valued continuous function, such that

$$\frac{\partial f}{\partial x} = 2x + 1 \text{ and } \frac{\partial f}{\partial y} = 2y + 1.$$

Suppose $\lim_{(x,y)\to(0,0)} f(x,y) = 5.$

Find out the directional derivative of f at the point $(0,0)$ in the direction of the vector $(1,1)$.

Options :

6406532467992. ✔ $\sqrt{2}$

6406532467993. ✖ $2\sqrt{2}$

6406532467994. ✖ $-2\sqrt{2}$

6406532467995. ✖ $-\sqrt{2}$

Sub-Section Number :	5
Sub-Section Id :	640653107634
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 141 Question Id : 640653737421 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3 Max. Selectable Options : 0

Question Label : Multiple Select Question

Which of the following is/are supervised learning task(s)?

Options :

6406532467997. ✔ Predicting future sales of a product based on the past sales data.

6406532467998. ✖ Reducing the dimensionality of images while retaining essential features, enabling efficient storage and transmission.

6406532467999. ✔ Recognizing and interpreting handwritten characters or words, often used in digit recognition or reading handwritten text.

6406532468000. ✔ Categorizing text documents into predefined classes, such as spam or non-spam emails.

Sub-Section Number : 6

Sub-Section Id : 640653107635

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 142 Question Id : 640653737415 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Max. Selectable Options : 0

Question Label : Multiple Select Question

Consider a matrix $B = A^4 - 3A - 2I$, where $A = \begin{bmatrix} 1 & 1 & 1 \\ 0 & 2 & 1 \\ 0 & 0 & 3 \end{bmatrix}$. Which of the following options is/are true?

Options :

6406532467976. ✔ Eigenvalues of *A* are 1, 2, and 3.

6406532467977. ✖ Eigenvalues of *A* are 1, 2, and 2.

6406532467978. ✖ Eigenvalues of *B* are 2, 20, and 78.

6406532467979. ✔ Matrix *B* is diagonalizable.

Question Number : 143 Question Id : 640653737416 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Max. Selectable Options : 0

Question Label : Multiple Select Question

Let A and B be symmetric matrices such that $AB = BA$. Then which of the following options is/are true?

Options :

6406532467980. ✔ AB is a symmetric matrix.

6406532467981. ✔ AB is orthogonally diagonalizable.

6406532467982. ✔ BA has real eigenvalues.

6406532467983. ✖ AB is not a symmetric matrix.

Question Number : 144 Question Id : 640653737422 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Max. Selectable Options : 0

Question Label : Multiple Select Question

Consider a function $f : \mathbb{R} \longrightarrow \mathbb{R}$ defined as $f(x) = |x(x-2)|$

Which of the following options is/are true?

Options :

6406532468001. ✔ $\lim\limits_{x \to 2^+} f(x) = \lim\limits_{x \to 2^-} f(x).$

6406532468002. ✖ f is differentiable at $x = 0.$

6406532468003. ✔ $f'(3) = 4.$

6406532468004. ✔ f is continuous at $x = 0.$

Sub-Section Number : 7

Sub-Section Id : 640653107636

Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 145 Question Id : 640653737420 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4

Question Label : Short Answer Question

Consider an encoder-decoder pair used for dimensionality reduction, where the encoder function is denoted as $f(x_1, x_2, x_3) = (x_1 + x_2 - x_3, x_1 + x_3)$ and the decoder function is denoted as $g(u) = (u_1, u_2, u_1 + u_2)$

Compute the reconstruction error $\left(R(f,g) = \frac{1}{n} \sum_{i=1}^{n} \|X_i - g(f(X_i))\|^2 \right)$ for the following dataset:

$$X_1 = [1, 2, 3], \quad X_2 = [0, 2, 2], \quad X_3 = [1, 0, -1]$$

Enter the answer correct to two decimal places.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Range

Text Areas : PlainText

Possible Answers :

3.12 to 3.20

Java

Section Id :	64065351358
Section Number :	10
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	16
Number of Questions to be attempted :	16
Section Marks :	100