Code: python app.py "Application Development" Java

URL: http://127.0.0.1:5000/course?course=Application

6406533039436. ✖

Code: python app.py Application Development DBMS

URL: http://127.0.0.1:5000/course?course=Application

6406533039437. ✔

Code: python app.py "Application Development" DBMS

URL: http://127.0.0.1:5000/course?course=Application Development

Question Number : 187 Question Id : 640653902452 Question Type : MCQ Calculator : Yes Correct Marks : 3

Question Label : Multiple Choice Question

What will be the output given by browser if the application is run with command

`python app.py Application Development DBMS`

on terminal with URL:

`http://127.0.0.1:5000/course?course=Application Development` ?

Options :

6406533039438. ✖ `Welcome to Application Development!`

6406533039439. ✖ `Welcome to DBMS!`

6406533039440. ✔ `Invalid Data`

6406533039441. ✖ `Not Found`

MLF

Section Id :	64065364077
Section Number :	9
Section type :	Online
Mandatory or Optional :	Mandatory

Number of Questions :	13
Number of Questions to be attempted :	13
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 :	No
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	640653133704
Question Shuffling Allowed :	No

Question Number : 188 Question Id : 640653902478 Question Type : MCQ Calculator : Yes 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 :

6406533039543. ✔ YES

6406533039544. ✖ NO

Sub-Section Number :	2
Sub-Section Id :	640653133705
Question Shuffling Allowed :	No

Question Id : 640653902479 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None

Question Numbers : (189 to 190)

Question Label : Comprehension

A company produces two types of products P_1 and P_2. The cost price per unit of P_1 and P_2 are ₹2 and ₹3, respectively. The production process requires two types of resources: labor hours and machine hours. Each unit of p_1 requires 2 labor hours and 1 machine hour, while each unit of P_2 requires 1 labor hour and 3 machine hours. The company has constraints on the availability of labor and machine hours, which are 80 and 90 hours, respectively.

Use the above information to answer the given sub-questions.

Sub questions

Question Number : 189 Question Id : 640653902480 Question Type : MCQ Calculator : Yes Correct Marks : 2

Question Label : Multiple Choice Question

Choose the correct **Primal** optimization problem from the following.

Options :

6406533039545. ✖ $\text{Minimize: } 3x + 2y$
$\text{Subject to: } 2x + y \leq 80, x + 3y \leq 90, x \geq 0, y \geq 0$

6406533039546. ✔ $\text{Minimize: } 2x + 3y$
$\text{Subject to: } 2x + y \leq 80, x + 3y \leq 90, x \geq 0, y \geq 0$

6406533039547. ✖ $\text{Minimize: } 3x + 2y$
$\text{Subject to: } 2x + y \leq 90, x + 3y \leq 80, x \geq 0, y \geq 0$

6406533039548. ✖ $\text{Minimize: } 2x + 3y$
$\text{Subject to: } 2x + y \leq 90, x + 3y \leq 80, x \geq 0, y \geq 0$

Question Number : 190 Question Id : 640653902481 Question Type : SA Calculator : None Correct Marks : 3

Question Label : Short Answer Question

Find the minimum cost price of the products.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

80

Sub-Section Number :	3
Sub-Section Id :	640653133706
Question Shuffling Allowed :	Yes

Question Number : 191 Question Id : 640653902482 Question Type : MSQ Calculator : Yes Correct Marks : 3 Max. Selectable Options : 0

Question Label : Multiple Select Question

Consider the following scenarios involving geographical regions (w.r.t some reference of $x-$ axis and $y-$ axis), which of the following regions represents the convex set in $\mathbb{R}^2$.

Options :

6406533039550. ✖ A circular park with one side boundary is a circle of radius of 200 meters and another side boundary is a circle of radius of 300 meters, both centered at the origin.

6406533039551. ✔ City district defined by the region above the x-axis within a radius of 10 miles from the origin, forming a semicircle.

6406533039552. ✔ A triangular region with vertices at (0, 0), (1, 0), and (0, 1).

6406533039553. ✖ A path consisting of two connected line segments (forming the boundaries of the path on either sides) formed a "V" shape with vertices at (0, 0), (2, 2), and (2, 0)

Question Number : 192 Question Id : 640653902483 Question Type : MSQ Calculator : Yes Correct Marks : 3 Max. Selectable Options : 0

Question Label : Multiple Select Question

Which of the following options is/are true?

Options :

6406533039554. ✖ $f(x) = (x^2 - 3x + 2)(x^2 - 7x + 12)$ is a convex function.

6406533039555. ✔ $f(v) = v^T Av$ is a convex function, where $A = \begin{bmatrix} 2 & 1 \\ 1 & 1 \end{bmatrix}$ and $v = \begin{bmatrix} x \\ y \end{bmatrix}$.

6406533039556. ✔ $f(x, y) = x^2 + y^2 + 3$ is a convex function.

6406533039557. ✔ $f(v) = v^T Av$ is a convex function, where $A = \begin{bmatrix} 2 & 0 \\ 0 & 1 \end{bmatrix}$ and $v = \begin{bmatrix} x \\ y \end{bmatrix}$.

Sub-Section Number :	4
Sub-Section Id :	640653133707
Question Shuffling Allowed :	Yes

Question Number : 193 Question Id : 640653902484 Question Type : SA Calculator : None Correct Marks : 3

Question Label : Short Answer Question

A farmer has 120 meters of fencing and wants to fence off a rectangular field that borders a straight river. The farmer does not need to fence along the river. Find the maximum possible fenced area of the field.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1800

Question Number : 194 Question Id : 640653902488 Question Type : SA Calculator : None Correct Marks : 3

Question Label : Short Answer Question

Suppose a random variable X has a mean μ of 70 and a standard deviation σ of 8. Using Chebyshev's inequality, determine the maximum probability that X will deviate from the mean by more than 16 units. Enter the answer correct to two decimal places.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

0.25

Question Number : 195 Question Id : 640653902492 Question Type : SA Calculator : None Correct Marks : 3

Question Label : Short Answer Question

Consider the following input data points:

x	y
$[2,3,4]$	9
$[-1,1,2]$	2
$[4,2,2]$	7
$[0,-2,-1]$	-4
$[-3,5,-2]$	4

Suppose we fit a linear model $f(\mathbf{x}) = x_1 + 2x_2 + x_3$, where $\mathbf{x} = (x_1, x_2, x_3)$. Compute the value of the loss function L for this dataset which is defined as $L = \frac{1}{n}\sum_{i=1}^{n}(f(\mathbf{x}^i) - y^i)^2$. Enter the answer correct to one decimal place.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

4.2

Question Number : 196 Question Id : 640653902493 Question Type : SA Calculator : None Correct Marks : 3

Question Label : Short Answer Question

Let X and Y be two independent random variables, where $X \sim \text{Normal}(-1, 11)$ and $Y \sim \text{Normal}(1, 9)$. Define $U = 2X - 3Y$. Find the value of $P(U > 2)$. Enter the answer correct to three decimal places.

Hint: Use the following values of F_Z if required. F_Z stands for the CDF of the standard normal.

- $F_Z(0.62) = 0.7343$
- $F_Z(-0.62) = 0.2656$
- $F_Z(1.25) = 0.8947$
- $F_Z(-1.25) = 0.1052$

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Range
Text Areas : PlainText
Possible Answers :

0.262 to 0.268

Sub-Section Number :	5
Sub-Section Id :	640653133708
Question Shuffling Allowed :	Yes

Question Number : 197 Question Id : 640653902485 Question Type : MSQ Calculator : Yes Correct Marks : 4 Max. Selectable Options : 0

Question Label : Multiple Select Question

Consider a square matrix A of order 3 such that trace(A) = 3 and det(A) = 2. If 1 is an eigenvalue of A, then which of the following options is/are true?

Options :

6406533039559. ✖ Matrix A is symmetric matrix.

6406533039560. ✖ Matrix A is Hermitian matrix.

6406533039561. ✔ 1 + i is an eigenvalue of A.

6406533039562. ✖ 2 − i is an eigenvalue of A.

6406533039563. ✔ Matrix A is diagonalizable.

Question Number : 198 Question Id : 640653902487 Question Type : MSQ Calculator : Yes Correct Marks : 4 Max. Selectable Options : 0

Question Label : Multiple Select Question

Suppose we have 10 data points randomly distributed in space, $\mathbb{R}^3$ given by $D = \{x_1, x_2, \ldots x_{10}\}$. Let $g(p) = \sum_{i=1}^{10} ||p - x_i||^2$ be a function defined to calculate the sum of the square of distances of data points from a fixed point, say $p \in \mathbb{R}^3$. If $g(p)$ attains the minimum at $q = \begin{bmatrix} 4 \\ 0 \\ 3 \end{bmatrix}$, then which of the following options is true?

Options :

6406533039568. ✖ $$x_1 + x_2 + \ldots + x_{10} = \begin{bmatrix} 30 \\ 0 \\ 40 \end{bmatrix}$$

6406533039569. ✔ $$x_1 + x_2 + \ldots + x_{10} = \begin{bmatrix} 40 \\ 0 \\ 30 \end{bmatrix}$$

6406533039570. ✔ The distance of point $(x_1 + x_2 + \ldots + x_{10})$ from the origin is 50.

6406533039571. ✖ The distance of point $(x_1 + x_2 + \ldots + x_{10})$ from the origin is 40.

Sub-Section Number : 6
Sub-Section Id : 640653133709
Question Shuffling Allowed : Yes

Question Number : 199 Question Id : 640653902486 Question Type : MSQ Calculator : Yes Correct Marks : 2 Max. Selectable Options : 0

Question Label : Multiple Select Question

Which of the following is/are true about PCA?

Options :

6406533039564. ✔ PCA will transform the original data set onto a lower dimension subspace such that the variance of the project is maximized.

6406533039565. ✖ PCA calculates the mean of each data set to determine its significance.

6406533039566. ✔ PCA can be used to reduce the dimensionality of the dataset.

6406533039567. ✖ PCA will transform the original data set onto a lower dimension subspace such that the reconstruction error is maximized.

Sub-Section Number : 7
Sub-Section Id : 640653133710
Question Shuffling Allowed : No

Question Id : 640653902489 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix

Calculator : None
Question Numbers : (200 to 201)
Question Label : Comprehension

Let X and Y have the following joint density function

$$f(x,y)=\begin{cases}18x^2y^2 & x,y\geq 0, x+y\leq 1\\ 0 & \text{otherwise}\end{cases}$$

Based on the above data, answer the given subquestions.
Sub questions

Question Number : 200 Question Id : 640653902490 Question Type : MCQ Calculator : Yes Correct Marks : 3
Question Label : Multiple Choice Question

Find the conditional distribution $f_{X|Y}(x \mid y)$.

Options :

6406533039573. ✖ $f_{X|Y}(x \mid y)=\dfrac{3x^2}{(1-y)^3},\ 0<x<1$

6406533039574. ✔ $f_{X|Y}(x \mid y)=\dfrac{3x^2}{(1-y)^3},\ 0<x<1-y$

6406533039575. ✖ $f_{X|Y}(x \mid y)=3x^2(1-y)^3,\ 0<x<1$

6406533039576. ✖ $f_{X|Y}(x \mid y)=3x^2(1-y)^3,\ 0<x<1-y$

Question Number : 201 Question Id : 640653902491 Question Type : SA Calculator : None Correct Marks : 2
Question Label : Short Answer Question

Find the value of $P\left(X<\dfrac{1}{2} \mid Y=\dfrac{1}{2}\right)$.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Sub-Section Number : 8
Sub-Section Id : 640653133711
Question Shuffling Allowed : Yes

Question Number : 202 Question Id : 640653902494 Question Type : MCQ Calculator : Yes
Correct Marks : 2
Question Label : Multiple Choice Question

Let $A = \begin{pmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 0 & 1 & 2 \end{pmatrix}$. Find the nullspace of A.

Options :

6406533039580. ✔ $\text{span}\left\{\begin{pmatrix} 1 \\ -2 \\ 1 \end{pmatrix}\right\}$

6406533039581. ✖ $\text{span}\left\{\begin{pmatrix} 1 \\ 1 \\ 1 \end{pmatrix}\right\}$

6406533039582. ✖ $\left\{\begin{pmatrix} 0 \\ 0 \\ 0 \end{pmatrix}\right\}$

6406533039583. ✖ $\text{span}\left\{\begin{pmatrix} 1 \\ 2 \\ 0 \end{pmatrix}, \begin{pmatrix} 2 \\ 3 \\ 1 \end{pmatrix}\right\}$

Java

Section Id : 64065364078
Section Number : 10
Section type : Online
Mandatory or Optional : Mandatory
Number of Questions : 24
Number of Questions to be attempted : 24
Section Marks : 100
Display Number Panel : Yes
Section Negative Marks : 0
Group All Questions : No