Sem1 Statistics1

Section Id :	64065356690
Section Number :	5
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	15
Number of Questions to be attempted :	15
Section Marks :	50
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 :	640653118902
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 168 Question Id : 640653816027 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 "FOUNDATION LEVEL : SEMESTER I: STATISTICS FOR DATA SCIENCE I (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 :

6406532733550. ✔ YES

6406532733551. ✖ NO

Sub-Section Number : 2

Sub-Section Id : 640653118903

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 169 Question Id : 640653816050 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

The probability of a man hitting a target is 1/4. If he fires 5 times, then find the probability that he will hit the target at least twice.

Options :

6406532733599. ✖ $\frac{1}{4}$

6406532733600. ✖ $\frac{486}{1024}$

6406532733601. ✖ $\frac{648}{1024}$

6406532733602. ✔ $\frac{376}{1024}$

Sub-Section Number : 3

Sub-Section Id :	640653118904
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 170 Question Id : 640653816040 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2 Max. Selectable Options : 0

Question Label : Multiple Select Question

If $X \sim \text{Normal}(\mu, \sigma^2)$, then choose the correct option(s) from the following.

Options :

6406532733575. ✖ $P(X \leq \mu) \neq P(X > \mu)$

6406532733576. ✔ $P(X \leq \mu) = P(X > \mu) = 0.5$

6406532733577. ✖ If $Z = \frac{X - \mu}{\sigma^2}$, then $Z \sim N(\mu, 1)$.

6406532733578. ✔ If $Z = \frac{X - \mu}{\sigma}$, then $Z \sim N(0, 1)$.

Question Number : 171 Question Id : 640653816041 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2 Max. Selectable Options : 0

Question Label : Multiple Select Question

Choose the correct option(s) from the following.

Options :

6406532733579. ✔ If $X \sim \text{Bernoulli}(p)$, then $E(X) = p$.

6406532733580. ✖ Range of cumulative distribution function of a discrete random variable is $(-\infty, +\infty)$.

6406532733581. ✔ Number of attempts to clear a qualifier exam is a discrete variable.

6406532733582. ✖ Hypergeometric distribution comes under continuous distribution.

Question Number : 172 Question Id : 640653816047 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2 Max. Selectable Options : 0

Question Label : Multiple Select Question

Which of the following option(s) is/are correct for a variable with interval scale of measurement?

Options :

6406532733590. ✔ Difference between the values of a variable can be evaluated.

6406532733591. ✔ Order of the data is meaningful.

6406532733592. ✖ Multiplication and division of values of a variable is possible.

6406532733593. ✖ It has an absolute zero.

Question Number : 173 Question Id : 640653816048 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2 Max. Selectable Options : 0

Question Label : Multiple Select Question

Which of the following statement(s) is(are) correct?

Options :

6406532733594. ✔ We must preserve the order of an ordinal data in a bar chart.

6406532733595. ✖ Mode is not defined for an ordinal data.

6406532733596. ✖ Mean can be calculated for a categorical data.

6406532733597. ✔ Covariance can be computed only for two numerical variables.

Sub-Section Number :	4
Sub-Section Id :	640653118905
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 174 Question Id : 640653816046 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Short Answer Question

If the mean of the observations $2a$, 10, $3a$, 50 and 40 is 30, then find the median of the dataset.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

30

Question Number : 175 Question Id : 640653816051 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Short Answer Question

The probability mass function of a discrete random variable X is given by

x	-1	0	1
$P(X=x)$	$1/6$	$1/2$	$1/3$

Table 2

Find the value of $E(2X+1)^2$. 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 :

3.62 to 3.70

Sub-Section Number : 5

Sub-Section Id : 640653118906

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 176 Question Id : 640653816045 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

In the first semester of B.S. degree, a student is expected to take 4 subjects. The grades for each subject can be *S*(10points),*A*(9points),*B*(8points),*C*(7points),*D*(6points),*E*(5points) and *F*(Fail). As per the rules, an enrolled student should obtain a minimum grade *E* in each subject to get promoted to the next semester. What is the total number of possible ways in which a student can get promoted?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1296

Question Number : 177 Question Id : 640653816049 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

The mean and sample standard deviation of the dataset consisting of 8 observations is 15 and 11 respectively. Later it is noted that one observation 13 is wrongly noted as 10. What is the mean of the original dataset? 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 :

15.08 to 15.68

Sub-Section Number :	6
Sub-Section Id :	640653118907
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653816028 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 : (178 to 179)

Question Label : Comprehension

In a company, 120 employees are divided into three departments: Marketing, Finance and IT. The number of employees in each department is as follows: 36 in Marketing, 40 in Finance and 44 in IT. An employee, out of 120, is randomly selected for a presentation. Let X denote the number of employees in the department to which that employee belongs. Based on the given information, answer the subquestions.

Sub questions

Question Number : 178 Question Id : 640653816029 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

Identify the correct distribution of *X*.

Options :

6406532733552. ✖

x	36	40	44
$P(X = x)$	1/3	1/3	1/3

6406532733553. ✔

x	36	40	44
$P(X = x)$	3/10	1/3	11/30

6406532733554. ✖

x	36	40	44
$P(X = x)$	1/3	11/30	3/10

6406532733555. ✖

x	36	40	44
$P(X = x)$	3/10	11/30	1/3

Question Number : 179 Question Id : 640653816030 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Short Answer Question

Find the expected value of *X*. 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 :

40.24 to 40.30

Question Id : 640653816031 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 : (180 to 181)

Question Label : Comprehension

A manufacturing company produces steel rods with lengths between 20 cm and 40 cm. Assume length of steel rods follows a uniform distribution.

Based on the given information, answer the given subquestions.

Sub questions

Question Number : 180 Question Id : 640653816032 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Short Answer Question

If $P(X \leq k) = P(X > k)$, then find the value of k.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

30

Question Number : 181 Question Id : 640653816033 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Multiple Choice Question

What is the probability that a randomly selected steel rod will have a length of more than 25 cm?

Options :

6406532733558. ✖ $\frac{1}{2}$

6406532733559. ✖ $\frac{1}{3}$

6406532733560. ✖ $\frac{1}{4}$

6406532733561. ✔ $\frac{3}{4}$

Question Id : 640653816034 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 : (182 to 183)

Question Label : Comprehension

Suppose the time taken by a delivery service to deliver a package (in hours) follows an exponential distribution with a mean delivery time of 10 hours. If someone places an order just before you, then based on the given information, answer the given subquestions.

Sub questions

Question Number : 182 Question Id : 640653816035 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Multiple Choice Question

What is the probability that you will have to wait more than 15 hours for your package to be delivered?

Options :

6406532733562. ✖ $1 - e^{-1.5}$

6406532733563. ✔ $e^{-1.5}$

6406532733564. ✖ $1 - e^{-0.67}$

6406532733565. ✖ $e^{-0.67}$

Question Number : 183 Question Id : 640653816036 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

What is the probability that you will have to wait between 15 hours and 30 hours?

Options :

6406532733566. ✔ $e^{-1.5} - e^{-3}$

6406532733567. ✖ $e^{-3} - e^{-1.5}$

6406532733568. ✖ $e^{-0.67} - e^{-0.33}$

6406532733569. ✖ $e^{-0.33} - e^{-0.67}$

Question Id : 640653816037 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 : (184 to 185)

Question Label : Comprehension

$\text{Suppose } X \sim \text{Poisson}(\lambda).$

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 184 Question Id : 640653816038 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 value of λ for which $3P(X = 3) = 2P(X = 2) + 4P(X = 1)$.

Options :

6406532733570. ✖ 2

6406532733571. ✔ 4

6406532733572. ✖ 1

6406532733573. ✖ −2

Question Number : 185 Question Id : 640653816039 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Short Answer Question

What is the value of $\frac{P(X \leq 1)}{P(X \leq 2)}$?

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 :

0.35 to 0.41

Question Id : 640653816042 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 : (186 to 187)

Question Label : Comprehension

Table Q.1 represents the data of status of a disease and blood concentration in the patients.

Test	Disease	
	$D+$	$D-$
$T+$	25	35
$T-$	50	20

Table Q.1

where,

$D+ =$ disease present
$D- =$ disease absent

$T+ =$ high blood concentration (positive test)

$T- =$ low blood concentration (negative test)

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 186 Question Id : 640653816043 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Multiple Choice Question

What is the probability that a patient has the disease and the test is positive?

Options :

6406532733583. ✔ $\frac{5}{26}$

6406532733584. ✖ $\frac{5}{14}$

6406532733585. ✖ $\frac{1}{3}$

6406532733586. ✖ $\frac{1}{2}$

Question Number : 187 Question Id : 640653816044 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Short Answer Question

Find the probability that a patient has the disease given that the test is positive.

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 :

0.39 to 0.45

Sem2 Statistics2

Section Id :	64065356691
Section Number :	6
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	12
Number of Questions to be attempted :	12
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 :	640653118908
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 188 Question Id : 640653816052 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 "FOUNDATION LEVEL : SEMESTER II: STATISTICS FOR DATA SCIENCE II (COMPUTER BASED EXAM)"