

**Question 1**

Not yet answered

Marked out of 16.00

 Flag question

A continuous random variable X has probability density function given by,

$$f_X(x) = \begin{cases} k(3 - x^2) & ; -1 \leq x \leq 1 \\ 0 & ; \text{otherwise} \end{cases}$$

1. Find k value.
2. Find  $P(X > 0.1)$ .  Choose...
3. Find  $V(X)$ .  Choose...
4. Find cumulative distribution function  Choose...
5. Find  $F(0.5)$ .  Choose...

When purifying drinking water you can use a so-called membrane filtration. In an experiment one wishes to examine the relationship between the pressure drop across a membrane and the flux (flow per area) through the membrane. We observe the following 10 related values of pressure (x) and flux (y).

Pressure (X)	1.02	2.08	2.89	4.01	5.32	5.83	7.26	7.96	9.11	9.99
Flux (Y)	1.15	0.85	1.56	1.72	4.32	5.07	5.00	5.31	6.17	7.04

### R Output for ANOVA table

#### Analysis of Variance Table

Response: Y

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
X	T	P	S	104.59	7.177e-06 ***
Residuals	U	Q	0.416		
Total	9	R			

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

- i. Find values marked P, Q, R, S, T and U in the ANOVA table.

P =  ▾

Q =  ▾

R =  ▾

S =  ▾

T =  ▾

U =  ▾

**Question 3**

Not yet answered

Marked out of 9.00

 Flag question

A consumer testing service rates a given DVD player as either very good or good. Let A denote the event that the rating is very good and B the event that the rating is good. You are given:  $\Pr(A) = 0.22$ ,  $\Pr(B) = 0.35$ .

Find,

1.  $\Pr(A^c)$  :

2.  $\Pr(A \cup B)$  :  Choose... ▾

3.  $\Pr(A \cap B)$  :  Choose... ▾

**Question 4**

Not yet answered

Marked out of 10.00

 Flag question

A sample of 42 batteries of a newly produced brand was subjected for testing their lifetimes before it is advertised for marketing. The lifetimes in hours which each survived is given below.

112 105 123 137 157 134 143 155 137 98 141 104 108 99 147 97 131 153 144 94 139 115 152 115 137 115 110 100 112 95 98 102 105  
130 90 99 96 110 117 114 120 140

For this data,  $\bar{x} = 119.76$  and  $S = 6.5123$ .

1. Construct 95% confidence interval for the true mean lifetime of batteries.

Lower Limit Equation:

Upper Limit Equation:

Critical value:

Lower Limit value:

Upper Limit value:

**Question 5**

Not yet answered

Marked out of 9.00

 Flag question

Suppose that in late summer, the Fremantle Surf Life Saving club makes an average of seven surf rescues per day. Without using any approximation, find the probability that,

1. More than two rescues are made on a particular day.

 Choose... ▾

2. Three to five surf rescues are made on a particular day.

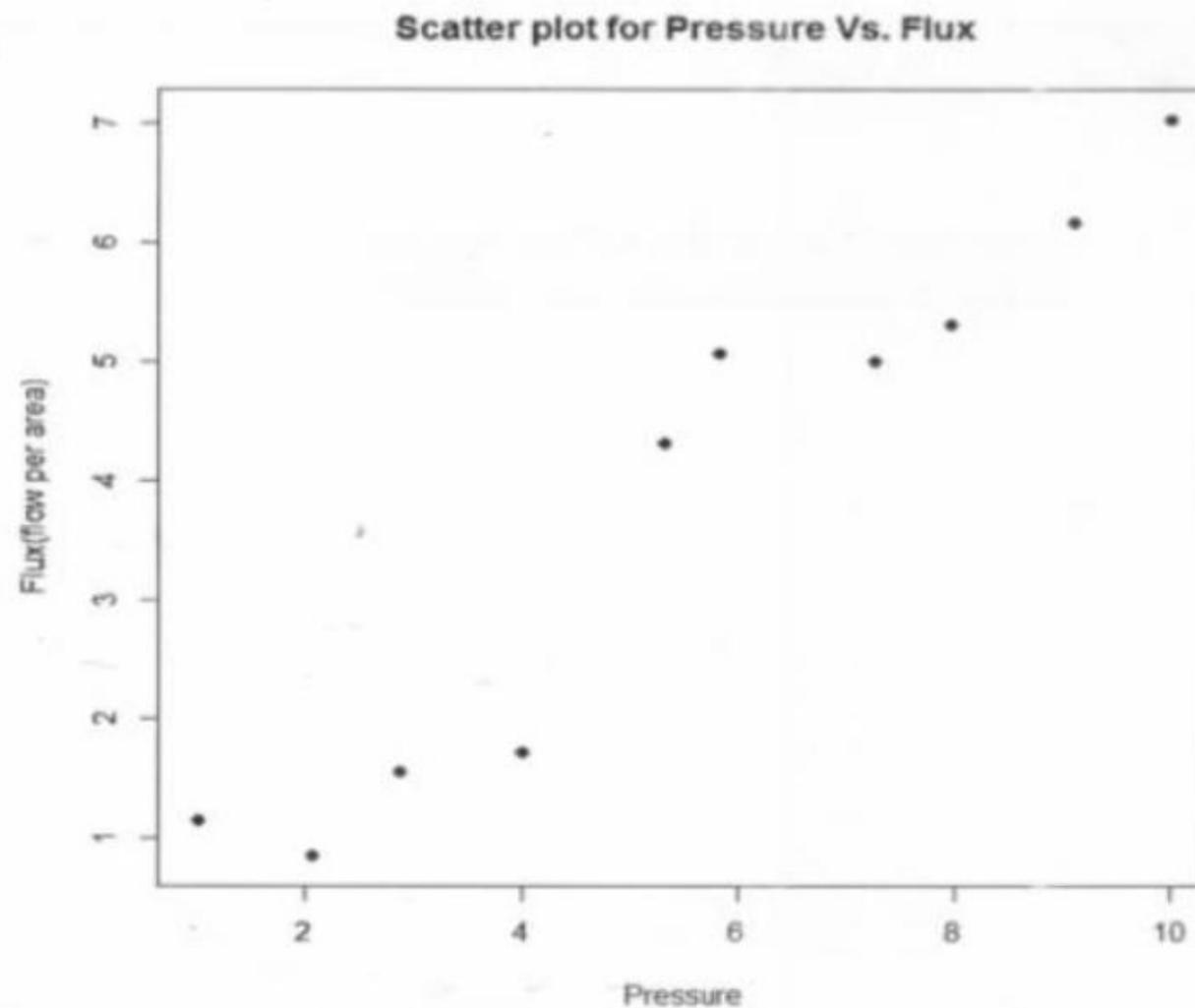
 Choose... ▾

3. Using suitable approximation, find the probability that fewer than four rescues are made on a particular day.

 Choose... ▾

When purifying drinking water you can use a so-called membrane filtration. In an experiment one wishes to examine the relationship between the pressure drop across a membrane and the flux (flow per area) through the membrane. We observe the following 10 related values of pressure (x) and flux (y).

Pressure (X)	1.02	2.08	2.89	4.01	5.32	5.83	7.26	7.96	9.11	9.99
Flux (Y)	1.15	0.85	1.56	1.72	4.32	5.07	5.00	5.31	6.17	7.04



## R Output

### Coefficients:

	(Intercept)	Pressure
	-0.1886	0.7225

### Analysis of Variance Table

Response: Y

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
X	T	P	S	104.59	7.177e-06 ***
Residuals	U	Q	0.416		
Total	9	R			
---					

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 ':' 0.1 '' 1

1. State the estimated Regression equation.

Estimated Flux = -0.1886 + 0.7225 (Pressure) ▾

2. Does the slope of the Regression line is significant ( $\beta \neq 0$ )?

Yes. Regression line is significant. ▾

3. Find the estimated flux when the pressure takes the value 5 units.

3.4239 flow per area ▾

4. Provide a meaningful conclusion from the above analysis.

There is a strong positive linear relationship in between pressure and flux. ▾

**Question 7**

Answer saved

Marked out of 3.00

 Flag question

Suppose that  $P(A) = 0.4$  and  $P(B) = 0.3$  where, A and B are independent. Find  $P(A \text{ and } B)$ .

Answer: -0.5

A large corporation is interested in determining whether a relationship exists between the commuting time of its employees and the level of stress-related problems observed on the job. A study of 116 workers reveals the following:

Commuting Time	Stress Level			
	High	Moderate	Low	Total
Under 15 min	9	5	18	32
15 - 45	17	8	28	53
Over 45 min	18	6	7	31
Total	44	19	53	116

At the 0.05 level of significance, is there evidence of a significant relationship between commuting time and stress level?

1. Hypothesis:

Choose...

2. Distribution of test statistic:

Choose... ▾

3. Significance level:

Choose... ▾

4. Critical value:

Choose... ▾

5. Rejection criteria:

Choose... ▾

6. Test value:

Choose... ▾

7. Conclusion (In Scientific term):

Choose... ▾

8. Conclusion (In terms of question):

Choose...

The quality-control manager at a light bulb factory state that the mean life of a large shipment of light bulbs is equal to 375 hours. The population standard deviation is 100 hours. A random sample of 64 light bulbs indicates a sample mean life of 350 hours. At the 0.05 level of significance, is there evidence that the mean life is increased from 375 hours?

1. Hypothesis:

2. Test Statistic (Under  $H_0$ ):

3. Distribution of test statistic:

4. Critical value:

5. Rejection criteria:

6. Test value:

7. Conclusion (In Scientific term):

8. Conclusion (In terms of question):

Choose...

2. Distribution of test statistic:

Choose...

3. Significance level:

Choose...

4. Critical value:

Choose...

5. Rejection criteria:

Choose...

6. Test value (Round off to the nearest integer):

Choose...

7. Conclusion (In Scientific term):

Choose...

Since  $t_{cal} = 76 > 2.776$ , reject  $H_0$  at 0.5% level of significance

Since  $X^2_{Cal} = 83 > 9.48773$ , reject  $H_0$  at 5% level of significance

Since  $X^2_{Cal} = 109 > 9.48773$ , do not reject  $H_0$  at 2.5% level of significance

Since  $t_{cal} = 11 > 4.604$ , do not reject  $H_0$  at 10% level of significance

Since  $X^2_{cal} = 123 > 18.0261$ , reject  $H_0$  at 1% level of significance

8. Conclusion (in General term):

Choose...

Next page

<b>Weekly advertising expenditure</b>	A	C	20095.0	G	0.0001010
<b>Residuals</b>	B	8698.2	E		
<b>Total</b>	11	D	F		

Signif. Codes: 0 '\*\*\*' 0.001 \*\* 0.01 \* 0.05 .' 0.1 '' 1

i. What can be concluded using the scatter plot?

Choose...

ii. State the estimated regression equation.

Choose...



Choose...

Estimated Weekly sales = 316.025 - 4.241 (Weekly advertising expenditure)

Estimated Weekly sales = 4.241 + 316.025 (Weekly advertising expenditure)

Estimated Weekly advertising expenditure = 4.241 + 316.025 (Weekly sales)

Estimated Weekly advertising expenditure = 316.025 + 4.241 (Weekly sales)

Estimated Weekly sales = 316.025 + 4.241 (Weekly advertising expenditure)

iii. State in how much weekly sales will change

Choose...

iv. Does slope of the Regression line is significant?

v. Use the regression equation to predict the weekly sales if weekly advertising expenditure is 34\$.

Choose...

Next page

Question 7

Not yet answered

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A retail merchant in USA has conducted a survey to determine the relationship in between weekly advertising expenditures and sales of his company. He has collected data for 12 weeks and weekly advertising expenditure (\$) and weekly sales (\$) have recorded for those 12 weeks. Following is the ANOVA table for the fitted regression model.

#### Analysis of Variance Table

Response: Weekly Sales (\$)

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Weekly advertising expenditure	A	C	28893.5	G	0.0001818***
Residuals	B	8698.2	E		
Total	11	D	F		

Signif. Codes: 0 \*\*\*\* 0.001 \*\*\* 0.01 \*\* 0.05 \* 0.1 † 1

Find values marked A, B, C, D, E, F and G in the ANOVA table.

1. A:

2. B:

3. C:

(Keep all the decimal places in the answer)

4. D:

(Keep all the decimal places in the answer)

5. E:

(Keep all the decimal places in the answer)

6. F:

\*

7. G:

(Round off the answer up to the fourth decimal point)

(Type your answers within the given spaces except for "F")

## Regression Model

### Coefficients

Intercept	Weekly Advertising Expenditure
316.025	4.241

### Analysis of Variance Table

Response: Weekly Sales (\$)

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Weekly advertising expenditure	A	C	28893.5	G	0.0001818***
Residuals	B	8698.2	E		
Total	11	D	F		

Signif. Codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 ':' 0.1 '' 1

A researcher reports that mice will live an average of 45 months when their diets are sharply restricted and then enriched with vitamins and proteins. Assuming that the lifetimes of such mice are normally distributed with a standard deviation of 7.3 months, find the probability that a given mouse will live.

1. More than 30 months :  (Keep all the decimal places in the answer)
2. Between 38 and 47 months :  (Keep all the decimal places in the answer)
3. What is the life time (in months) of a mouse where 20% of all mice have less than this life time?  I   
(Give your answer to the nearest integer)

(Type your answers within the given spaces)

g question

- a) Find k value (Round off to three decimal values) : 0.375
- b) Find the Expected value of X. (Round off to three decimal values) : 0.500
- c) Find the variance of X ( $V(X)$ ) : (Round off to three decimal values) : 0.017
- d) Find  $F_X(0.5)$  : (Round off to three decimal values) : 0.484

(Type the correct answers within the given spaces)





## Question 1

Not yet answered

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12.00

Flag question

A Continuous random variable X has a probability density function given by,

$$f_X(x) = \begin{cases} k(1 - x^2) & ; -1 \leq x \leq 1 \\ 0 & ; \text{otherwise} \end{cases}$$

- a) Find k value (Round off to three decimal values) :
- b) Find the expected value ( $E(X)$ ) . (Round off to 3 decimal values) :
- c) Find variance of X ( $V(X)$ ). (Round off to three decimal values) :
- d) Find  $F_X(0.5)$  . (Round off to three decimal values) :

(Type the correct answers within the given spaces)

Next page

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Weekly advertising expenditure	A	C	28893.5	G	0.0001818***
Residuals	B	8698.2	E		
Total	11	D	F		
Signif. Codes: 0 **** 0.001 *** 0.01 ** 0.05 * 0.1 † 1					

i. What can be concluded using the scatter plot?

Choose...

Choose...

Data points in the plot are not enough to say anything about the plot.

There is no any relationship in between weekly sales and weekly advertising expenditure.

There is no pattern in the scatter plot.

There is a positive linear relationship in between weekly sales and weekly advertising expenditure.

There is a negative linear relationship in between weekly sales and weekly advertising expenditure.

iv. Does slope of the Regression line is significant ( $\beta \neq 0$ )? Use  $\alpha = 5\%$ . Choose...

v. Use the regression equation to predict the weekly sales if weekly advertising expenditure is 34\$. Choose...

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# Online Exams

Sri Lanka Institute of Information Technology

1  
answered  
out of  
question

In an experiment, it is given that  $P(A) = 0.3$  and  $P(B') = 0.5$  and  $P(A \cup B) = 0.8$ . Are  $A$  and  $B$  mutually exclusive?

Select one:

- Yes
- No
- Given information is not enough to decide.

Residuals    B      D      4.85

Total      C      E

Signif. Codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 '' 1

i. What can be concluded using the scatter plot?

There is a negative linear relationship in between daily rainfall and particulate removed.

ii. State the estimated regression equation.

Estimated Particulate Removed = 153.175 - 6.324 (Daily Rainfall)

iii. State in how much particulate removed will change if daily rainfall increase by 1mm.

Particulate removed will decrease by 153.175 units

iv. Does slope of the Regression line is significant ( $\beta \neq 0$ )? Use  $\alpha = 5\%$ . Yes. Regression line is significant.

v. Use the regression equation to predict particulate removed if daily rainfall is 6.4mm.

Choose...

Next Page

Weekly advertising expenditure	A	C	28893.5	G	0.0001818***
Residuals	B	8698.2	E		
Total	11	D	F		

Signif. Codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 '' 1

i. What can be concluded using the scatter plot?

Choose...

ii. State the estimated regression equation.

Choose...

iii. State in how much weekly sales will change if weekly advertising expenditure increased by one unit.

Choose...

iv. Does slope of the Regression line is significant ( $\beta \neq 0$ )? Use  $\alpha = 5\%$ .

Choose...

v. Use the regression equation to predict the weekly sales if weekly advertising expenditure is 34\$.

Choose...

Next page

Signif. Codes: 0 \*\*\*\* 0.001 \*\*\* 0.01 \*\* 0.05 \* 0.1 † 1

i. What can be concluded using the scatter plot?

Choose...

ii. State the estimated regression equation.

Choose...

iii. State in how much weekly sales will change if weekly advertising expenditure increased by one unit.

Choose...

iv. Does slope of the Regression line is significant ( $\beta \neq 0$ )? Use  $\alpha = 5\%$ .

Choose...

Choose...

- Data is not enough to test it.
- No. Slope is equal to zero ( $\beta = 0$ ).
- information is not enough to test it.
- Yes. Regression line is significant.
- No. Regression line is not significant.

v. Use the regression equation to predict the weekly sales if weekly ad

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ASUS VivoBook



# Online Exams

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eg question

A Continuous random variable X has a probability density function given by,

$$f_X(x) = \begin{cases} k(1 - x^2) & ; -1 \leq x \leq 1 \\ 0 & ; \text{otherwise} \end{cases}$$

a) Find  $k$  value (Round off to three decimal values)

:

b) Find the expected value ( $E(X)$ ) . (Round off to 3 decimal values)

:

c) Find variance of  $X$  ( $V(X)$ ). (Round off to three decimal values)

:

d) Find  $F_X(0.5)$  . (Round off to three decimal values)

:

(Type the correct answers within the given spaces)

☰  
DEC  
1  
QUESTIONS  
1  
9  
FEEDBACK  
11  
Finish attempt  
Time left 1:00:00

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## Online Exams

Sri Lanka Institute of Information Technology

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er answered  
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ag question

After a survey, done by a Research group in a certain university in USA, claimed that 40% of the people in USA will vote for Donald Trump. From a sample of 50 people, without using any approximation, calculate the probability that,

a) At least 20 people will vote for Donald Trump?

b) Fewer than 12 people vote for Donald Trump?

c) Using a suitable approximation, find the probability that less than 15 people will vote for Donald Trump?

Type your answers within the given spaces [Keep all decimal places of the final answer].

[Next page](#)

11

Finish

Time

1. Hypothesis:

Choose...

2. Distribution of test statistic:

Choose...

3. Significance level:



4. Critical value:

Choose...

5. Rejection criteria:

Choose...

6. Therefore there is enough evidence to suggest that sunscreen usage and grade obtained by respondents are independent.

Choose...

Therefore there is enough evidence to suggest that sunscreen usage and grade obtained by respondents are independent.

We can't give a conclusion since data is not enough.

Therefore there is enough evidence to suggest that there is no relationship in between sunscreen usage and grade obtained by respondents.

Therefore there is enough evidence to suggest that there is an association in between sunscreen usage and grade obtained by respondents.

8. Therefore there is enough evidence to suggest that there is no association in between sunscreen usage and grade obtained by respondents.

Choose...

Next page

Choose...

2. Distribution of test statistic:

Choose...

3. Significance level:



4. Critical value:

Choose...

Choose...

5. Rejection criter

4.604

1.64

6. Test value (Roun

9.48773

earrest integer):

18.0261

2.776

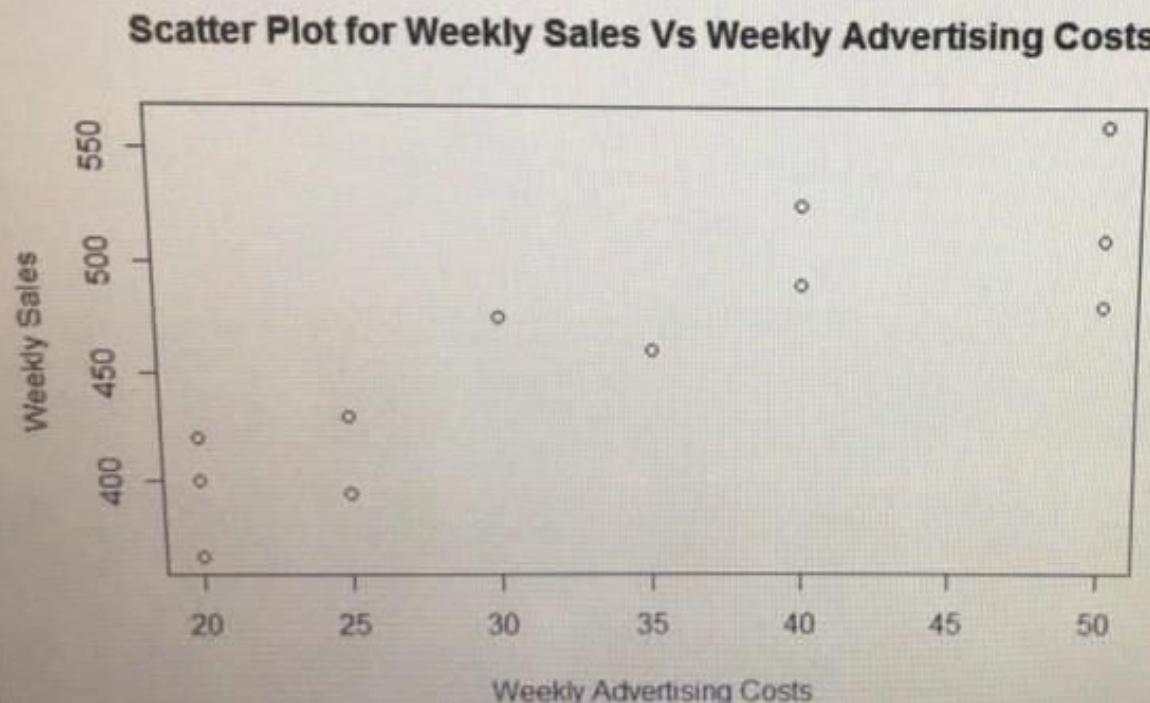
7. Conclusion (In S

Choose...

8. Conclusion (In General term):

Choose...

A retail merchant in USA has conducted a survey to determine the relationship between weekly advertising expenditures and sales of his company. He has collected data for 12 weeks and weekly advertising expenditure (\$) and weekly sales (\$) have recorded for those 12 weeks. Figure below displays the scatter plot for the data.



R outputs of the regression model are shown below.

Regression Model



# Online Exams

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3  
answered  
1 out of  
g question

A study of the amount of rainfall and the quantity of air pollution removed produced a set of data. To examine the relationship between the daily rainfall and particulate removed ( $\mu\text{g}/\text{m}^3$ ), data were collected for 9 days. Following information is given.

$$\sum x = 45 \quad \sum y = 1094 \quad \sum xy = 5348.2 \quad \sum (x^2) = 244.26 \quad \sum (y^2) = 133786$$

Where X is the daily rainfall and Y is the particulate removed.

Calculate Pearson's correlation coefficient between the two variables (Give your answer in four decimal places).

(Type your answer within the given space)

Answer:

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11

Finish

Time

Total

11 D F

Signif. Codes: 0 '\*\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 '..' 1

i. What can be concluded using the scatter plot?

There is a positive linear relationship in between weekly sales and weekly advertising expenditure.

ii. State the estimated regression equation.

Estimated Weekly sales = 316.025 + 4.241 (Weekly advertising expenditure)

iii. State in how much weekly sales will change if weekly advertising expenditure increased by one unit.

Weekly sales will increase by 4.241\$.

iv. Does slope of the Regression line is significant ( $\beta \neq 0$ )? Use  $\alpha = 5\%$ . Yes. Regression line is significant.

v. Use the regression equation to predict the weekly sales if weekly advertising expenditure is 34\$.

460.22\$

Next page

	566	85	47	698
D's and P's	85	15	3	103
Total	1975	548	335	2858

1. Hypothesis:

Choose...

2. Distribution of test statistic:

Choose...

3. Significance level:

▼

4. Critical value:

Choose... ▼

5. Rejection criteria:

Choose...

- Choose...
- Chi squared distribution with 4 degrees of freedom
- t distribution with 4 degrees of freedom
- Chi squared distribution with 6 degrees of freedom
- t distribution with 6 degrees of freedom
- Chi squared distribution with 9 degrees of freedom

6. Test value (Round off to the nearest integer):

▼

7. Conclusion (In Scientific term):

Choose...

8. Conclusion (In General term):



# Online Exams

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**Question 1**

Not yet answered

Marked out of  
16.00[Flag question](#)

Past experience indicates that the time required for high school seniors to complete a standardized test (exam) is a normal random variable with an average of 35 minutes and standard deviation of 4.7 minutes. If a random sample of 20 high school seniors took an average of 23.4 minutes to complete this exam, test the hypothesis that average completion time ( $\mu$ ) has decreased, at the 0.05 level of significance.

- a) Hypothesis :  $H_0: \mu \geq 35$  Vs  $H_1: \mu < 35$
- b) Test Statistic (Under  $H_0$ ) :  $Z = (X_{\bar{}} - \mu) / (\sigma / \sqrt{n})$
- c) Distribution of test statistic : Normal Distribution ( $N(0,1)$ )
- d) Critical value : 1.96
- e) Rejection criteria : Reject  $H_0$  if  $Z_{\text{cal}} < -1.96$  at 5% level of significance
- f) Test value : -11.04
- g) Conclusion (in Scientific term) : Since  $Z_{\text{cal}} = -11.04$  is less than -1.64, reject  $H_0$  at 5% level of significance
- h) Conclusion (in general term) : Therefore there is enough evidence to suggest that average completion time has decreased

**≡ Quiz navigation****DECLARATION****QUESTIONS****FEEDBACK**

Finish attempt

Time left: 1:45:41

Total

11 D F

Signif. Codes: 0 \*\*\*\* 0.001 \*\*\* 0.01 \*\* 0.05 \* 0.1 '' 1

i. What can be concluded using the scatter plot?

Choose...

ii. State the estimated regression equation.

Choose...

iii. State in how much weekly sales will change if weekly advertising expenditure increased by one unit.

Choose...

Choose...

Weekly sales will not change.

Weekly sales will decrease by 316.025\$.

Weekly sales will decrease by 4.241\$.

Weekly sales will increase by 4.241\$.

Weekly sales will increase by 316.025\$.

ificant ( $\beta \neq 0$ )? Use  $\alpha = 5\%$ .

Choose...

ie weekly sales if weekly advertising expenditure is 34\$.

Choose...

Next pa

ASUS VivoBook

Grade	Never or rarely	Sometimes	Always or Most times	TOTAL
A's and B's	1322	450	285	2057
C's	568	83	47	698
D's and P's	85	15	3	103
Total	1975	548	335	2858

1 2 3 4 5 6 7 8

9 10

FEEDBACK  
11

Finish attempt ...

Time left 1:56:38

1. Hypothesis:

Choose...

Choose...

H0: There is no association in between sunscreen usage and grade obtained by respondents Vs. H1: There is an association in between sunscreen usage and grade obtained by respondents

2. H0: Sunscreen usage and grade obtained by respondents are dependent Vs. H1: Sunscreen usage and grade obtained by respondents are independent

H0: There is an association in between sunscreen usage and grade obtained by respondents Vs. H1: There is no association in between sunscreen usage and grade obtained by respondents

3. H0: Sunscreen usage and grade obtained by respondents are related Vs. H1: Sunscreen usage and grade obtained by respondents are not related

H0: There is a relationship in between sunscreen usage and grade obtained by respondents Vs. H1: There is no relationship in between sunscreen usage and grade obtained by respondents

4. Critical value: Choose...

5. Rejection criteria: Choose...

6. Test value (Round off to the nearest integer): Choose...

7. Conclusion (In Scientific term): Choose...

8. Conclusion (In General term):

Choose...

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# Online Exams

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A researcher reports that mice will live an average of 45 months when their diets are sharply restricted and then enriched with vitamins and proteins. Assuming that the lifetimes of such mice are normally distributed with a standard deviation of 7.3 months, find the probability that a given mouse will live.

1. More than 30 months :  (Keep all the decimal places in the answer)

2. Between 38 and 47 months :  (Keep all the decimal places in the answer)

3. What is the life time (in months) of a mouse where 20% of all mice have less than this life-time?  months (Give your answer to the nearest integer)

Type your answers within the given spaces)

[Next page](#)

The following table shows data for grades usually achieved in school and how often the respondent puts on sunscreen when going out in the sun for more than 1 hour. Respondents are 12th-grade participants in the 2003 Youth Risk Behavior Surveillance System survey. The survey, sponsored by the U.S. Centers for Disease Control and Prevention, is a national survey of high school students. Test whether there is any association between sunscreen use and grade. Consider 5% level of significance.

Grade	Sunscreen Use			Total
	Never or rarely	Sometimes	Always or Most times	
A's and B's	1322	450	285	2057
C's	568	83	47	698
D's and F's	85	15	3	103
Total	1975	548	335	2858

1. Hypothesis:

Choose...

2. Distribution of test statistic:

Choose...

3. Significance level:

4. Critical value:

Choose...

5. Decision criteria:

Choose...

	450	450	205	2057
C's	568	83	47	698
D's and P's	85	15	3	103
Total	1975	548	335	2858

1. Hypothesis:

Choose...

2. Distribution of test statistic:

Choose...

3. Significance level:

Choose...

4. Critical value:

Choose...

5. Rejection criteria:

Choose...

6. Test value (Round off to the nearest integer):



7. Conclusion (in Scientific term):

Choose...

8. Conclusion (in General term):

Choose...

Next page

9

FEEDBA

11

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Time left 1

2. Distribution of test statistic: Choose... ▾

3. Significance level: ▾

4. Critical value: Choose... ▾

5. Rejection criteria: Choose... 

6. Test value (Round off):

- Reject  $H_0$  if  $X^2_{\text{cal}} < 18.0261$  at 1% level of significance
- Reject  $H_0$  if  $X^2_{\text{Cal}} > 9.48773$  at 5% level of significance
- Reject  $H_0$  if  $X^2_{\text{cal}} > 9.48773$  at 0.5% level of significance
- Reject  $H_0$  if  $t_{\text{cal}} > 4.604$  at 2.5% level of significance
- Reject  $H_0$  if  $t_{\text{cal}} < 2.776$  at 10% level of significance

7. Conclusion (In Scientific term):

Choose...

8. Conclusion (In General term):



# Online Exams

Sri Lanka Institute of Information Technology

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☰ Quiz

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11

Finish

Time

A manufacturer of PVC pipes claims that inside diameters of PVC pipes produced by his company are approximately normally distributed with a mean of 12 inches and standard deviation of 2.3 inches. Find the following probabilities.

1. Probability that diameter of a PVC pipe is at most 10 inches :  (Keep all the decimal places in the answer)
  2. Probability that diameter of a PVC pipe is in between 11 inches and 14 inches :  (Keep all the decimal places in the answer)
  3. At which diameter, 43% of PVC pipes have less than that diameter?  Inches (Keep the answer with two decimal points)
- (Type your answers within the given spaces)

Next page



2. Distribution of test statistic:

Choose...

3. Significance level:



4. Critical value:

Choose... ▾

5. Rejection criteria:

Choose...



6. Test value (Round off to the nearest integer):



7. Conclusion (In Scientific term):

Choose...

11
83
76
109
123

8. Conclusion (In General term):

Choose...

Signif. Codes: 0 \*\*\*\* 0.001 \*\*\* 0.01 \*\* 0.05 \* 0.1 † 1

i. What can be concluded using the scatter plot?

Choose...

ii. State the estimated regression equation.

Choose...

iii. State in how much weekly sales will change if weekly advertising expenditure increased by one unit.

Choose...

iv. Does slope of the Regression line is significant ( $\beta \neq 0$ )? Use  $\alpha = 5\%$ .

Choose...

v. Use the regression equation to predict the weekly sales if weekly advertising expenditure is 34\$.

Choose...

- Choose...
- 66.5\$
- 460.22\$
- 530.43\$
- 171.83\$
- 10749.09\$

Next page

ASUS VivoBook

A retail merchant in USA has conducted a survey to determine the relationship in between weekly advertising weeks and weekly advertising expenditure (\$) and weekly sales (\$) have recorded for those 12 weeks. Following

$$\sum x = 405 \quad \sum y = 5510 \quad \sum xy = 192775 \quad \sum (x^2) = 15275 \quad \sum (y^2) = 2567600$$

Where X is the weekly advertising expenditure and Y is the weekly sales.

Calculate Pearson's correlation coefficient between the two variables (Give your answer in four decimal place)

(Type your answer within the given space)

Answer: -1.0027



**Sri Lanka Institute of Information Technology**

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三

Answered  
3 out of

A manufacturer claims that a jar of peanut butter contains mean of 500 grams with a standard deviation of 15.5 grams. Assuming that content of jar of peanut butter follows a normal distribution, find the following probabilities.

1. Probability that jar of peanut butter contains at most 530 grams: 0.9732

(Keep all the decimal places in the answer)

2. Probability that jar of peanut butter contains in between 470 grams and 520 grams : -0.00052 (Keep all the decimal places in the answer)

DECLAR

1  
QUEST

6

(Type your answers within the given spaces)



# Online Exams

Sri Lanka Institute of Information Technology

A retail merchant in USA has conducted a survey to determine the relationship in between weekly advertising expenditure (\$) and weekly sales (\$). He has collected data for 12 weeks and weekly advertising expenditure (\$) and weekly sales (\$) are as follows. Following is the ANOVA table for the fitted regression model.

## Analysis of Variance Table

Response: Weekly Sales (\$)

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Weekly advertising expenditure	A	C	28893.5	G	0.0001818***
Residuals	B	8698.2	E	.	.
Total	11	D	F	.	.

Signif. Codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Find values marked A, B, C, D, E, F and G in the ANOVA table.

1. A :

2. B :

3. C :  (Keep all the decimal places in the answer)

4. D :  (Keep all the decimal places in the answer)

5. E :  (Keep all the decimal places in the answer)

6. F :

7. G :  (Round off the answer up to the fourth decimal point)

(Type your answers within the given spaces except for "F")

ASUS

g question

- a) Find k value (Round off to three decimal values) :
- b) Find the Expected value of X. (Round off to three decimal values) :
- c) Find the variance of X ( $V(X)$ ) : (Round off to three decimal values) :
- d) Find  $F_X(0.5)$  : (Round off to three decimal values) :

(Type the correct answers within the given spaces)



Residuals	B	2019.0	E
Total	24	D	F

Signif. Codes: 0 \*\*\*\* 0.001 \*\*\* 0.01 \*\* 0.05 \* 0.1 † 1

i. What can be concluded using the scatter plot?

There is a positive linear relationship in between arm strength and dynamic lift.

ii. State the estimated regression equation.

Estimated Arm Strength = 12.561+1.789 (Dynamic Lift)

iii. State in how much dynamic lift will change if arm strength increased by one unit.

Dynamic lift will decrease by 12.561 units.

iv. Does slope of the Regression line is significant ( $\beta \neq 0$ )? Use  $\alpha = 5\%$ .

Yes. Regression line is significant.

v. Use the regression equation to predict dynamic lift if arm strength is 43.4 units.

17.2381 units



# Online Exams

## Sri Lanka Institute of Information Technology

A typist of a certain Book Publishing Company can type 7 pages per day. Without using any approximation, calculate

a) The typist type more than 8 pages per day

b) The typist type fewer than 3 pages per day

c) Using a suitable approximation, find the probability that the typist type less than or equal to 4 pages per day.

Type your answers within the given spaces [Keep all decimal places of the final answer].

**Question 9**

Not yet answered

Marked out of  
10.00[Flag question](#)

A random group of 40 patients, who were suffered from high blood pressure, has average systolic blood pressure as 122.6 with standard deviation of 4.5. Construct a 90% confidence interval for the true mean of systolic blood pressure ( $\mu$ )

a) Lower Limit Equation : Choose...

b) Upper Limit Equation : Choose...

c) Critical value : Choose...

d) Lower Limit value : Choose...

e) Upper Limit value : Choose...

- Choose...
- 123.77
- 124.02
- 123.12
- 123.01
- 125.04

[Next page](#)

**Question 10**

Not yet answered

Marked out of  
16.00

Flag question

A group of researchers wants to investigate the mean relief time given by a certain drug for Back Pain. Past experimental studies have been stated that the average relief time is 6.5 hours. But researchers stated that the relief time should be greater than this value. To test this new claim, they selected 40 random patients who were suffering from Back Pain and given this drug. Average relief time for this sample was 7.5 hours with 2.25 standard deviation. Test the hypothesis at 5% level of significance.

a) Hypothesis

 : Choose... ▾

b) Test Statistic (Under H0)

 : Choose... ▾

c) Distribution of test statistic

 : Choose... ▾  

- Choose...**
- T distribution with df=38
- T Distribution (N (0,1))
- Normal Distribution (N (0,1))
- Normal Distribution (N (0, .506))
- Normal Distribution (N (7.5, .1))

 : Choose... ▾

d) Critical value

 : Choose... ▾

e) Rejection criteria

 : Choose... ▾

f) Test value

 : Choose... ▾

g) Conclusion (In Scientific term) :

 : Choose... ▾

h) Conclusion (In general term) :

 : Choose... ▾



# Online Exams

Sri Lanka Institute of Information Technology

**Question 10**

Not yet answered

Marked out of  
16.00

Flag question

A group of researchers wants to investigate the mean relief time given by a certain drug for Back Pain. Past experimental studies have been stated that the average relief time is 6.5 hours. But researchers stated that the relief time should be greater than this value. To test this new claim, they selected 40 random patients who were suffering from Back Pain and given this drug. Average relief time for this sample was 7.5 hours with 2.25 standard deviation. Test the hypothesis at 5% level of significance.

a) Hypothesis : Choose...

b) Test Statistic (Under  $H_0$ ) : Choose...

Choose...

c) Distribution of test statistic :  $Z = (\bar{X} - \mu) / (S/\sqrt{n})$

$Z = (\bar{X} - \mu) / (\sigma/\sqrt{n})$

$Z = (\bar{X} - \mu) / (S/n)$

$T = (\bar{X} - \mu) / (S/\sqrt{n-1})$

$T = (\bar{X} - \mu) / (\sigma/\sqrt{n})$

d) Critical value : Choose...

e) Rejection criteria : Choose...

f) Test value : Choose...

g) Conclusion (in Scientific term) : Choose...

h) Conclusion (in general term) : Choose...

**Question 9**

Not yet answered

Marked out of  
10.00

Flag question

A random group of 40 patients, who were suffered from high blood pressure, has average systolic blood pressure as 122.6 with standard deviation of 4.5. Construct a 90% confidence interval for the true mean of systolic blood pressure ( $\mu$ )

- a) Lower Limit Equation : Choose...
- b) Upper Limit Equation :  $X \bar{ } - t(0.10,39) * (S/\sqrt{n})$   
 $X \bar{ } - Z(5\%) * (S/\sqrt{n})$
- c) Critical value :  $X \bar{ } - Z(0.90) * (\sigma/\sqrt{n})$   
 $X \bar{ } - Z(10\%) * (S/\sqrt{n})$   
 $X \bar{ } - t(5\%,n) * (S/\sqrt{n})$
- d) Lower Limit value : Choose...
- e) Upper Limit value : Choose...

**Question 9**

Not yet answered

Marked out of  
10.00

Flag question

A random group of 40 patients, who were suffered from high blood pressure, has average systolic blood pressure as 122.6 with standard deviation of 4.5. Construct a 90% confidence interval for the true mean of systolic blood pressure ( $\mu$ )

a) Lower Limit Equation : Choose...

b) Upper Limit Equation : Choose...

c) Critical value : Choose...

Choose...



d) Lower Limit value : 1.96

2.57

2.01

-1.96

1.64

e) Upper Limit value : Choose...

Next p



## Online Exams

Sti Lanka Institute of Information Technology

Question 8

Not yet answered

Marks out of  
1.00

Flag question

After a survey, done by a Research group in a certain university in USA, claimed that 40% of the people in USA will vote for Donald Trump. From a sample of 50 people, without using any approximation, calculate the probability that.

- a) At least 20 people will vote for Donald Trump?
- b) Fewer than 12 people vote for Donald Trump?
- c) Using a suitable approximation, find the probability that less than 15 people will vote for Donald Trump?

Type your answers within the given spaces [Keep all decimal places of the final answer].

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≡ Quiz navigation

DECLARATION

QUESTION

1 2 3 4

5 6 7 8

9 10

11 12

13 14

15 16

17 18

19 20



## Online Exams

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### Sri Lanka Institute of Information Technology

**Question 3**

Not yet answered.

Marked out of  
2.00

Flag question

Select one:

- Yes
- No
- Given information is not enough to decide.

In an experiment, it is given that  $P(A) = 0.3$  and  $P(B) = 0.5$  and  $P(A \cup B) = 0.8$ . Are A and B mutually exclusive?

### Quiz navigation

DETAILED ANSWER

1

QUESTIONS

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

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PREVIOUS

NEXT

Final attempt  
Time left 13:10:08

**Question 9**

Not yet answered

Marked out of  
10.00

Flag question

A random group of 40 patients, who were suffered from high blood pressure, has average systolic blood pressure as 122.6 with standard deviation of 4.5. Construct a 90% confidence interval for the true mean of systolic blood pressure ( $\mu$ )

a) Lower Limit Equation : Choose...

b) Upper Limit Equation : Choose...

c) Critical value : Choose...

d) Lower Limit value : Choose...

e) Upper Limit value : Choose...

- Choose...
- 122.47
- 120.12
- 126.22
- 121.85
- 121.43

[Next page](#)



# Online Exams

Sri Lanka Institute of Information Technology

A Motor Company wants to investigate the average fuel consumption of a particular motor car it produces. The average fuel consumption is 16.5 km per one liter. New Technical staff of that Motor Company claims that the new average fuel consumption is higher than 16.5 km/liter. To test this, Motor company took the assistance of statistician and he selected a random sample of 36 cars and found that the average fuel consumption is 16.8 km/liter and standard deviation is 2.6. Test the claim of technical staff at 1% level of significance.

a) Hypothesis:  $H_0: \mu = 16.5$  Vs  $H_1: \mu > 16.5$

b) Test Statistic (Under  $H_0$ ):  $T = (\bar{X} - \mu) / (S/\sqrt{n-1})$

c) Distribution of test statistic:

Normal Distribution ( $N(16.5, 1)$ )

d) Critical value: Choose...

e) Rejection criteria: Reject  $H_0$  if  $Z_{cal} > 2.58$  or  $Z_{cal} < -2.58$  at 5% level of significance

f) Test value: Choose...

g) Conclusion (in Scientific terms): Choose...

h) Conclusion (in general terms): Choose...

Since  $Z_{cal} = -1.70$  is in between -2.58 and 2.58 we do not reject  $H_0$  at 1% level of significance  
Since  $Z_{cal} = -1.70$  is in between -1.64 and 1.64 we do not reject  $H_0$  at 5% level of significance  
Since  $T_{cal} = -2.1$  is in between -2.58 and 2.58 we do not reject  $H_0$  at 5% level of significance  
Since  $Z_{cal} = 2.1$  is greater than 1.64, reject  $H_0$  at 5% level of significance  
Since  $Z_{cal} = -1.70$  is in between -1.96 and 1.96 we do not reject  $H_0$  at 1% level of significance



# Online Exams

Sri Lanka Institute of Information Technology

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et answered

ed out of

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lag question

A random group of 40 patients, who were suffered from high blood pressure, has average systolic blood pressure as 122.6 with standard deviation of 4.5. Construct a 90% confidence interval for the true mean of systolic blood pressure ( $\mu$ ) .

a) Lower Limit Equation : Choose...

b) Upper Limit Equation : Choose...

c) Critical value : Choose...

d) Lower Limit value : Choose...

e) Upper Limit value : Choose...

Next page

**Question 1**

Not yet answered

Marked out of  
7.00

Flag question

A study of the amount of rainfall (X) and the quantity of air pollution removed (Y) produced the following information about the relationship between the daily rainfall and particulate removed ( $\mu\text{g}/\text{m}^3$ ). Data were collected for 9 days and an analysis of variance regression model is as follows.

**Analysis of Variance Table**

Response: Particulate Removed

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Rainfall	A	770.26	F	G	4.579e-06***
Residuals	B	D	4.85		
Total	C	E			

Signif. Codes: 0 \*\*\* 0.001 \*\* 0.01 \* 0.05 . 0.1 ' 1

Find values marked A, B, C, D, E, F and G in the ANOVA table.

1. A : 2. B : 3. C : 4. D :  (Keep all the decimal places in the answer)5. E :  (Keep all the decimal places in the answer)6. F :  (Keep all the decimal places in the answer)7. G :  (Round off the answer up to the second decimal point)

(Type your answers within the given spaces)

A group of researchers wants to investigate the mean relief time given by a certain drug for Back Pain. Past experimental studies have been stated that the average relief time is 6.5 hours. But researchers stated that the relief time should be greater than this value. To test this new claim, they selected 40 random patients who were suffering from Back Pain and given this drug. Average relief time for this sample was 7.5 hours with 2.25 standard deviation. Test the hypothesis at 5% level of significance.

a) Hypothesis :  $H_0: \mu \leq 6.5$  Vs  $H_1: \mu > 6.5$

b) Test Statistic (Under  $H_0$ ) :  $Z = (X \bar{-} \mu) / (\sigma / \sqrt{n})$

c) Distribution of test statistic : Normal Distribution ( $N(0, 5.06)$ )

d) Critical value : Choose...

e) Rejection criteria : Choose...

f) Test value : Choose...

g) Conclusion (In Scientific term) : Choose...

h) Conclusion (In general term) : Choose...



Question 10

Not yet answered

Marked out of  
16.00

Reg question

A group of researchers wants to investigate the mean relief time given by a certain drug for Back Pain. Past experimental studies have been stated that the average relief time is 6.5 hours. But researchers stated that the relief time should be greater than this value. To test this new claim, they selected 40 random patients who were suffering from Back Pain and given this drug. Average relief time for this sample was 7.5 hours with 2.25 standard deviation. Test the hypothesis at 5% level of significance.

a) Hypothesis

: Choose...

Choose...

H0:  $\mu \geq 6.5$  Vs H1:  $\mu < 6.5$

H0:  $\mu = 6.5$  Vs H1:  $\mu \neq 6.5$

H0:  $\mu = 7.5$  Vs H1:  $\mu \neq 7.5$

H0:  $\mu \leq 7.5$  Vs H1:  $\mu > 7.5$

H0:  $\mu \leq 6.5$  Vs H1:  $\mu > 6.5$

d) Critical value

: Choose...

e) Rejection criteria

: Choose...

f) Test value

: Choose...

g) Conclusion (In Scientific term)

: Choose...

h) Conclusion (In general term)

: Choose...



stitute

Information Technology

**Question 9**

Not yet answered

Marked out of  
10.00 Flag question

In a classroom of 36 students, has average Statistics marks as 72 with a standard deviation of 5.5. Construct a 95% confidence interval for the true mean of Statistics marks ( $\mu$ ).

a) Lower Limit Equation : Choose...

b) Upper Limit Equation : Choose...

c) Critical value Choose...

d) Lower Limit value

e) Upper Limit value

[Next page](#)

## The Symbol

<

≤

>

≥

## What It Means

less than  
fewer than

less than or equal to  
no more than  
does not exceed  
at most

greater than  
more than  
exceeds

greater than or equal to  
at least  
no less than

**Question 3**

Not yet answered  
Marked out of  
10.00

Flag question

**Business & Technology**

A random group of 40 patients, who were suffered from high blood pressure, has average systolic blood pressure as 122.6 with a standard deviation of 4.5. Construct a 90% confidence interval for the true mean of systolic blood pressure ( $\mu$ )

- a) Lower Limit Equation :
- b) Upper Limit Equation :
- c) Critical value :
- d) Lower Limit value :
- e) Upper Limit value :

QUESTION 10

Not yet answered

Marked out of

16.00

Flag question

A group of researchers wants to investigate the mean relief time given by a certain drug for Back Pain. Past experimental studies have been stated that the average relief time is 6.5 hours. But researchers stated that the relief time should be greater than this value. To test this new claim, they selected 40 random patients who were suffering from Back Pain and given this drug. Average relief time for this sample was 7.5 hours with 2.25 standard deviation. Test the hypothesis at 5% level of significance.

- a) Hypothesis :  $H_0: \mu \leq 6.5$  Vs  $H_1: \mu > 6.5$
- b) Test Statistic (Under  $H_0$ ) :  $Z = (\bar{X} - \mu) / (\sigma / \sqrt{n})$
- c) Distribution of test statistic : Normal Distribution ( $N(0,1)$ )
- d) Critical value : 1.64
- e) Rejection criteria : Choose...   
Choose...   
Reject  $H_0$  if  $Z_{cal} > 1.64$  at 5% level of significance  
Reject  $H_0$  if  $T_{cal} > 1.64$  at 5% level of significance  
Reject  $H_0$  if  $T_{cal} = 1.64$  at 5% level of significance  
Reject  $H_0$  if  $Z_{cal} < -1.64$  at 5% level of significance  
Reject  $H_0$  if  $Z_{cal} > 1.96$  at 5% level of significance
- f) Test value
- g) Conclusion (in Scientific term)
- h) Conclusion (in general term) : Choose...

Next page

## Online Exams

Sri Lanka Institute of Information Technology

U.S. Census Bureau estimates of the average number of persons per household in the United States for census years between 1850 and 2000 are shown in the following table with the ANOVA output for the fitted regression model. (These data are in the file `perhouse` on the companion website.)

Year	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000
Average number of persons per Household	5.55	5.28	5.09	5.04	4.93	4.76	4.54	4.34	4.11	3.67	3.37	3.35	3.14	2.76	2.63	2.59

### Analysis of Variance Table

Response: Average number of persons per household

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Year	A	14.9164	F	G	3.875e-14***
Residuals	B	D	E	F	G
Total	C	E	F	G	H

Signif. Codes: 0 \*\*\* 0.001 \*\* 0.01 \* 0.05 . 0.1 -

Find values marked A, B, C, D, E, F and G in the ANOVA table.

1. A

2. B

3. C

4. D

(Keep all the decimal places in the answer)

5. E

(Keep all the decimal places in the answer)

6. F

(Keep all the decimal places in the answer)

7. G

(Round off the answer up to the fourth decimal point)

Type your answers within the grey spaces:

1000+

TAKEING YOU TO A  
NEW REALITY

INTEL® QUANTUM™

CASIO  
fx-991ES PLUS  
CALCULATOR

Question 10

yet answered  
Marked out of  
0.00  
[Flag question](#)

A group of researchers wants to investigate the mean relief time given by a certain drug for Back Pain. Past experimental studies have been stated that the average relief time is 6.5 hours. But researchers stated that the relief time should be greater than this value. To test this new claim, they selected 40 random patients who were suffering from Back Pain and given this drug. Average relief time for this sample was 7.5 hours with 2.25 standard deviation. Test the hypothesis at 5% level of significance.

a) Hypothesis : Choose...

b) Test Statistic (Under  $H_0$ ) : Choose...

c) Distribution of test statistic : Choose...

d) Critical value : Choose...

e) Rejection criteria : Choose...

f) Test value : Choose...

g) Conclusion (in Scientific term) : Choose...

h) Conclusion (in general term) : Choose...

[Next page](#)

Past experience indicates that the time required for high school seniors to complete a standardized test (exam) is a normal random variable with an average of 35 minutes and standard deviation of 4.7 minutes. If a random sample of 20 high school seniors took an average of 23.4 minutes to complete this exam, test the hypothesis that average completion time ( $\mu$ ) has decreased, at the 0.05 level of significance.

- a) Hypothesis :
- b) Test Statistic (Under H0) :
- c) Distribution of test statistic :
- d) Critical value :
- e) Rejection criteria :
- f) Test value :
- g) Conclusion (In Scientific term) :
- h) Conclusion (In general term) :

≡ Quiz navigation

DECLARATION

1

QUESTIONS

1  
2  
3  
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8  
9  
10

FEEDBACK

11

Finish attempt

Time left 1:29:57

16.00

Flag question

claim, they selected 40 random patients who were suffering from Back Pain and given this drug. Average relief time for the hours with 2.25 standard deviation. Test the hypothesis at 5% level of significance.

- a) Hypothesis :
- b) Test Statistic (Under H0) :
- c) Distribution of test statistic :
- d) Critical value :
- e) Rejection criteria :
- f) Test value :    
Choose...
- g) Conclusion (In Scientific term) :
- h) Conclusion (In general term) :

a) Hypothesis	:	H <sub>0</sub> : $\mu \leq 6.5$ Vs H <sub>1</sub> : $\mu > 6.5$
b) Test Statistic (Under H <sub>0</sub> )	:	Z = $(\bar{X} - \mu) / (\sigma / \sqrt{n})$
c) Distribution of test statistic	:	Normal Distribution (N (0,1))
d) Critical value	:	1.64
e) Rejection criteria	:	Choose...
f) Test value	:	Choose...
g) Conclusion (In Scientific term):	:	Choose...
h) Conclusion (In general term):	:	Choose... Since Z <sub>cal</sub> =-2.81 is less than -1.64 reject H <sub>0</sub> at 5% level of significance. Since Z <sub>cal</sub> =2.89 is greater than 1.96 reject H <sub>0</sub> at 5% level of significance. Since Z <sub>cal</sub> =2.81 is greater than 1.96 reject H <sub>0</sub> at 5% level of significance. Since T <sub>cal</sub> =-2.89 is less than -1.64 reject H <sub>0</sub> at 5% level of significance. Since Z <sub>cal</sub> =2.81 is greater than 1.64 reject H <sub>0</sub> at 5% level of significance.

Next

ASUS VivoBook

**Question 9**

Not yet answered

Marked out of  
10.00

Flag question

A random group of 40 patients, who were suffered from high blood pressure, has average systolic blood pressure as 122.6 with standard deviation of 4.5. Construct a 90% confidence interval for the true mean of systolic blood pressure ( $\mu$ )

- a) Lower Limit Equation : Choose...
- b) Upper Limit Equation : Choose... 
- c) Critical value : X bar + Z(10%) \* (S/vn)  
X bar + t(5%,n) \* (S/vn)
- d) Lower Limit value : X bar + Z(5%) \* (S/vn)  
X bar + t(0.10,39) \* (S/vn)
- e) Upper Limit value : Choose... 

Total

11 D

F

Signif. Codes: 0 \*\*\*\* 0.001 \*\*\* 0.01 \*\* 0.05 \* 0.1 † 1

i. What can be concluded using the scatter plot?

There is a positive linear relationship in between weekly sales and weekly advertising expenditure.

ii. State the estimated regression equation.

Estimated Weekly sales = 316.025 + 4.241 (Weekly advertising expenditure)

iii. State in how much weekly sales will change if weekly advertising expenditure increased by one unit.

Weekly sales will increase by 4.241\$.

iv. Does slope of the Regression line is significant ( $\beta \neq 0$ )? Use  $\alpha = 5\%$ .

Yes. Regression line is significant.

v. Use the regression equation to predict the weekly sales if weekly advertising expenditure is 34\$.

460.22\$

Next page



# Online Exams

Sri Lanka Institute of Information Technology

on 7  
et answered  
ed out of  
eg question

A researcher found that pulse rates of women, who are affected by COVID-19 virus has a mean of 75 and the standard deviation is 8. Assuming that pulse rate of women follows a normal distribution, find the following probabilities.

1. Probability that a COVID-19 infected woman has less than 70 pulse rate :  (Keep all the decimal places in the answer)
2. Probability that a COVID-19 infected woman has pulse rate in between 55 and 90 :  (Keep all the decimal places in the answer)
3. At which pulse rate, 30% of COVID-19 infected women have more than that pulse rate?  (Keep the answer with two decimal points)

(Type your answers within the given spaces)

Next page

≡ Quiz navig

DECLARATION

I

QUESTIONS

1	2	3
4	5	6
7	8	9

10

FEEDBACK

11

Finish attempt

Time left 0:53:12



From past records, suppose that on a typical day, 30% of students drive to campus. 60% of the students come to campus by bike and the remaining 10% come to campus in some other way (Eg:- By walk, take the bus, get a ride). The campus sponsors a "spare the air" day to encourage people not to drive to campus. After the program, they want to know whether these proportions have changed. To test this hypothesis, a random sample of 300 students on a particular day was asked how they got to campus. Following are the results.

Transportation mode	Drive	Bike	Other	Total
Frequency	100	150	50	300

Do the above results suggest that the past record for proportions have changed? Use 5% level of significance.

1. Hypothesis:

Choose...

2. Distribution of test statistic:

Choose...

3. Significance level:

Choose...

4. Critical value:

Choose...

5. Rejection criteria:

Choose...

6. Test value:

Choose...

7. Conclusion (in Scientific term):

Choose...

8. Conclusion (in General term):

Choose...

**Question 5**

Not yet answered

Marked out of  
7.00 Flag question

U.S. Census Bureau estimates of the average number of persons per household in the United States for census years between 1850 and 2000 are shown in the following table with the ANOVA output for the fitted regression model. (These data are in the file *perhouse* on the companion website.)

Year	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000
Average number of persons per Household	5.55	5.28	5.09	5.04	4.93	4.76	4.54	4.34	4.11	3.67	3.37	3.35	3.14	2.76	2.63	2.59

**Analysis of Variance Table**

Response: Average number of persons per household

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Year	A	14.9164	F	G	5.875e-14***
Residuals	B	D	0.0174		
Total	C	E			

Signif. Codes: 0 \*\*\* 0.001 \*\* 0.01 \* 0.05 . 0.1 '' 1

Find values marked A, B, C, D, E, F and G in the ANOVA table.

1. A:

2. B:

3. C:

4. D:

(Keep all the decimal places in the answer)

5. E:

(Keep all the decimal places in the answer)

6. F:

(Keep all the decimal places in the answer)

7. G:

(Round off the answer up to the fourth decimal point)

(Type your answers within the given spaces)



## Online Exams

Sri Lanka Institute of Information Technology

1  
answered  
out of  
question

A typist of a certain Book Publishing Company can type 7 pages per day. Without using any approximation, calculate the probability that,

a) The typist type more than 8 pages per day 0.40129

b) The typist type fewer than 3 pages per day 0.02964

c) Using a suitable approximation, find the probability that the typist type less than or equal to 4 pages per day. 0.08177

Type your answers within the given spaces [Keep all decimal places of the final answer].



**Exams**  
**Institute of Information Technology**

that average life time of a truck tire is 50500 miles with a standard deviation of 2500 miles.

of a truck tire is at least 60000 miles:  (Keep all the decimal places in the answer)

truck tire is 45000 to 58900 miles:  (Keep all the decimal places in the answer)

38% of truck tires took less than this life time?  miles (Give the answer to the nearest integer)

A Continuous random variable X has a probability density function given by,

$$f_X(x) = \begin{cases} k(3x^2 - 3) & ; -1 \leq x \leq 1 \\ 0 & ; \text{ otherwise} \end{cases}$$

a) Find  $k$  value (Round off your answer to three decimal values)

b) Find Expected Value (Round off your answer to three decimal values) :

c) Find Variance (Round off your answer to three decimal values) :

d) Find  $F_X(0.7)$  (Round off your answer to three decimal values) I :

(Type the correct answers within the given spaces)

die

X C G D E

## Online Exams

Sri Lanka Institute of Information Technology

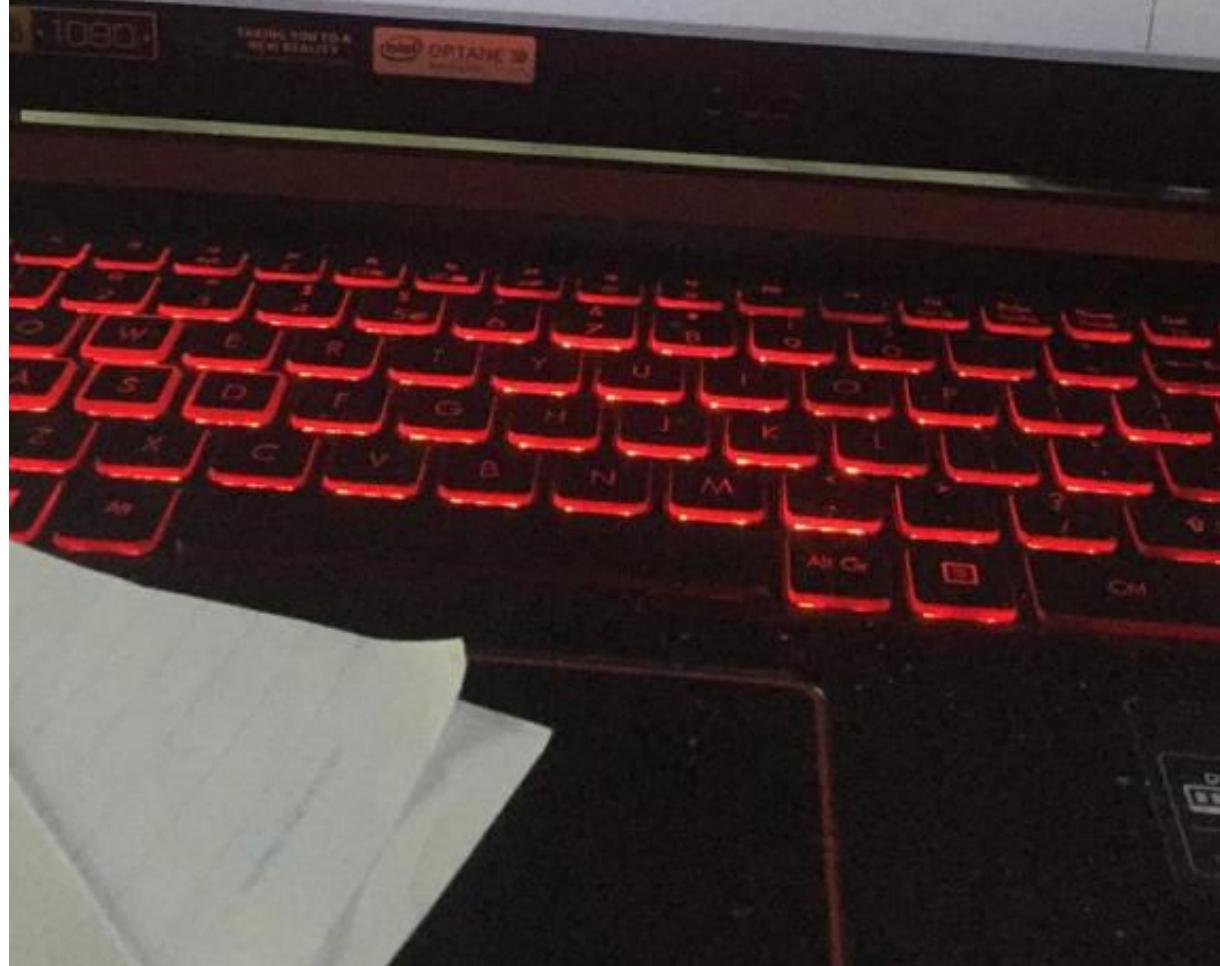
18  
Answered  
of  
Questions

A researcher is interested in finding whether there is any relationship between temperature and the proportion of impurities passing through solid helium. Temperature is measured in degrees centigrade ( $^{\circ}\text{C}$ ). He used a sample size of 10 to study this relationship. Figure below displays the scatter plot for the data.

**Scatter Plot for Proportion of Impurities Vs Temperature**

Temperature ( $^{\circ}\text{C}$ )	Proportion of Impurities
-271	0.85
-270	0.68
-269	0.38
-268	0.35
-267	0.32
-266	0.28

R outputs of the regression model are shown below:



A company, which produced candy products, required to test whether the average sugar content of a single toffee is different with the value, which is marked on the label. In the label it is marked as 2.5 g. From the previous studies it has been discovered that, sugar content has standard deviation of 0.15 and it is normally distributed. A group of researchers conducted an experiment to test this by taking a random sample of 28 toffees. Sample average sugar content was 2.4 g. Test the hypothesis at 5% level of significance.

a) Hypothesis

: Choose...

b) Test Statistic

: Choose...

c) Distribution of test statistic

: Choose...

d) Critical value

: Choose...



e) Rejection criteria

: Choose...

f) Test value

: Choose...

g) Conclusion (In Scientific term):

: Choose...

h) Conclusion (in general term)

: Choose...

**Question 2**

Not yet answered

Marked out of  
16.00

Flag question

Fertilizer manufacturing company required to test whether the potassium content in a one fertilizer packet is less than the value mentioned in the packet cover. In the cover it mentioned as 15.5 g. They took a random sample of 25 fertilizer packs and mean and standard deviation of the sample were calculated as 15.0 g and 2.2. Test the manufacturing company's claim at 5% level of significance.

- a) Hypothesis :  $H_0: \mu \geq 15.5$  Vs  $H_1: \mu < 15.5$
- b) Test Statistic :  $Z = (X_{\bar{}} - \mu) / (S/n)$
- c) Distribution of test statistic : Normal distribution ( $N(0,1)$ )
- d) Critical value : -1.711
- e) Rejection criteria : Reject  $H_0$  if  $T_{cal} < -1.711$  at 5% level of significance.
- f) Test value : -1.14
- g) Conclusion (In Scientific term) : Since  $T_{cal} = -1.14$  is greater than -1.711, we do not reject  $H_0$  at 5% level of significance
- h) Conclusion (In general term) : We don't have enough evidence to suggest that actual mean potassium content is less than the mentioned value

[Next page](#)

# Online Exams

Sri Lanka Institute of Information Technology

A researcher is interested in finding whether there is any relationship between temperature and the proportion of impurities passing through solid helium. Temperature is measured in degrees centigrade ( $^{\circ}\text{C}$ ). He used a sample size of 10 to study this relationship. Following information is given.

$$\sum x = -2685.6 \quad \sum y = 7.007 \quad \sum xy = -1893.5644 \quad \sum (x^2) = 721454.96 \quad \sum (y^2) = 5.634547$$

Where X is the temperature and Y is the proportion of impurities.

Calculate Pearson's correlation coefficient between the two variables (Give your answer in four decimal places).  
(Type your answer within the given space)

Answer:

Next page



# Online Exams

Sri Lanka Institute of Information Technology

on 1

answered  
d out of  
g question

A Continuous random variable X has a probability density function given by,

$$f_X(x) = \begin{cases} k(3x^2 - 3) & ; -1 \leq x \leq 1 \\ 0 & ; \text{otherwise} \end{cases}$$

- a) Find  $k$  value (Round off your answer to three decimal values) :
- b) Find Expected Value (Round off your answer to three decimal values) :
- c) Find Variance (Round off your answer to three decimal values) :
- d) Find  $F_X(0.7)$  (Round off your answer to three decimal values) :

(Type the correct answers within the given spaces)

# Online Exams

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## Sri Lanka Institute of Information Technology

Question 4

Not yet answered

Marked out of  
12.00

 Flag question

A researcher found that pulse rates of women, who are affected by COVID-19 virus has a mean of 75 and the standard deviation is 8. Assuming that pulse rate of women follows a normal distribution, find the following probabilities.

1. Probability that a COVID-19 infected woman has less than 70 pulse rate : 0.266  (Keep all the decimal places in the answer)
2. Probability that a COVID-19 infected woman has pulse rate in between 55 and 90 : 0.9634  (Keep all the decimal places in the answer)
3. At which pulse rate, 30% of COVID-19 infected women have more than that pulse rate?  I (Keep the answer with two decimal points)

(Type your answers within the given spaces)

[Next page](#)



# Online Exams

## Sri Lanka Institute of Information Technology

A researcher has found that average life time of a truck tire is 50500 miles with a standard deviation of 2500 miles. Assuming that life time of a truck tire follows a normal distribution, find the following probabilities,

1. Probability that life time of a truck tire is at least 60000 miles :  (Keep all the decimal places in the answer)
2. Probability that life time of a truck tire is 45000 to 58900 miles :  (Keep all the decimal places in the answer)
3. What is the life time (in miles) where 38% of truck tires took less than this life time?  miles (Give the answer to the nearest integer)

(Type your answers within the given spaces)

next page

Flag question

claim, they selected 40 random patients who were suffering from Back Pain and given this drug. Average relief time for this sample was 7.5 hours with 2.25 standard deviation. Test the hypothesis at 5% level of significance.

a) Hypothesis :  $H_0: \mu \leq 6.5$  Vs  $H_1: \mu > 6.5$

b) Test Statistic (Under  $H_0$ ) :  $Z = (X_{\bar{}} - \mu) / (\sigma / \sqrt{n})$

c) Distribution of test statistic : Normal Distribution ( $N(0,1)$ )

d) Critical value : 1.64

e) Rejection criteria : Choose...  
Choose...

f) Test value : Reject  $H_0$  if  $Z_{cal} > 1.64$  at 5% level of significance

Reject  $H_0$  if  $T_{cal} > 1.64$  at 5% level of significance

Reject  $H_0$  if  $T_{cal} < 1.64$  at 5% level of significance

Reject  $H_0$  if  $Z_{cal} < -1.64$  at 5% level of significance

Reject  $H_0$  if  $Z_{cal} > 1.96$  at 5% level of significance

g) Conclusion (in Scientific term) : Choose...

h) Conclusion (in general term) : Choose...

Next page

ASUS VivoBook

A researcher is interested in finding whether there is any relationship between temperature and the proportion of impurities passing through solid helium. Temperature is measured in degrees centigrade ( $^{\circ}\text{C}$ ). He used a sample size of 10 to study this relationship. Following information is given.

$$\sum x = -2685.6 \quad \sum y = 7.007 \quad \sum xy = -1893.5644 \quad \sum (x^2) = 721454.96 \quad \sum (y^2) = 5.634547$$

Where  $X$  is the temperature and  $Y$  is the proportion of impurities.

Calculate Pearson's correlation coefficient between the two variables (Give your answer in four decimal places).

Type your answer within the given space)

Answer:

1

Total Page

7.00

 Flag question

companion website.)

Year	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000
Average number of persons per Household	5.55	5.28	5.09	5.04	4.93	4.76	4.54	4.34	4.11	3.67	3.37	3.35	3.14	2.76	2.63	2.59

**Analysis of Variance Table**

Response: Average number of persons per household

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Year	A	14.9164	F	G	5.875e-14***
Residuals	B	D	0.0174		
Total	C	E			

Signif. Codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 '--' 1

Find values marked A, B, C, D, E, F and G in the ANOVA table.

1. A : 1  
 2. B : 14  
 3. C : 15  
 4. D : 0.0174 (Keep all the decimal places in the answer)

5. E : 15.16 (Keep all the decimal places in the answer)

6. F : 14.9164 (Keep all the decimal places in the answer)

7. G : 0.0012644 (Round off the answer up to the fourth decimal point)

(Type your answers within the given spaces.)

DEC

1

QUES

1

9

FEEDBA

11

Finish at

Time left

i. What can be concluded using the scatter plot?

There is a positive linear relationship between organic acid content and acid content of material.

ii. State the estimated regression equation.

Estimated Organic acid content =  $31.7087 + 0.3533$  (Acid content of material)

iii. State in how much acid content of material will change if organic acid content increased by one unit.

Acid content of material will increase by 31.7087 units.

iv. Does slope of the Regression line is significant ( $\beta \neq 0$ )? Use  $\alpha = 5\%$ . Yes. Regression line is significant.

v. Use the regression equation to predict the acid content of material if organic acid content is 143 units.

82.2806 units

Response: Acid content of material.

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Organic acid content	A	C	2517.02	G	2.278e-05***
Residuals	B	262.98	E		
Total	9	D	F		

Signif. Codes: 0 \*\*\*\* 0.001 \*\*\* 0.01 \*\* 0.05 : 0.1 : 1

Find values marked A, B, C, D, E, F and G in the ANOVA table.

1. A :

I

2. B :

3. C :

(Keep all the decimal places in the answer)

4. D :

(Keep all the decimal places in the answer)

5. E :

(Keep all the decimal places in the answer)

6. F :

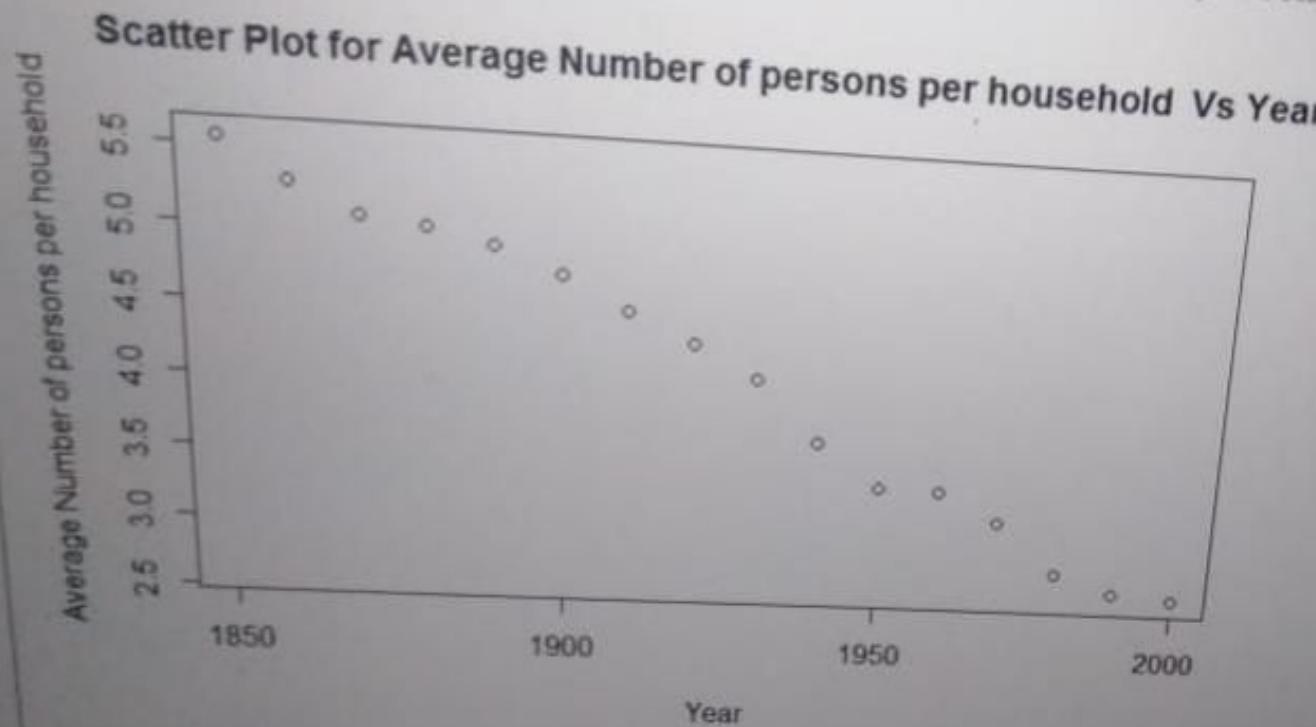
\*

7. G :

(Round off the answer up to the fourth decimal point)

(Type your answers within the given spaces except for "F")

U.S. Census Bureau estimates of the average number of persons per household in the United States for census years between 1850 and 2000 are extracted from the file perhouse on the companion website. Figure below displays the scatter plot for the data.



R outputs of the regression model are shown below.

#### Regression Model

##### Coefficients

EQ

DECLAI

QUESTION

1 2

9 10

FEEDBACK

11

Finish attempt

Time left 1:36:37

1. Hypothesis:

H<sub>0</sub>: There is a relationship in between size of a family and level of education attained by father Vs. H<sub>1</sub>: There is no relationship between size of a family and level of education attained by father

2. Distribution of test statistic: Chi squared distribution with 4 degrees of freedom

3. Significance level: 1%

4. Critical value: 13.2767

5. Rejection criteria: Reject H<sub>0</sub> if  $\chi^2_{Cal} > 13.2767$  at 1% level of significance

6. Test value (Round off to the nearest integer): 9

7. Conclusion (in Scientific term): Since  $\chi^2_{Cal} = 9 < 13.2767$ , do not reject H<sub>0</sub> at 1% level of significance

8. Conclusion (in General term):

Insufficiently strong evidence to suggest that size of a family is dependent on the level of education attained by father.

## Lesson 10: Technology

U.S. Census Bureau estimates of the average number of persons per household in the United States for census years between 1850 and 2000 are shown in the following table. (These data are in the file `perhouse` on the companion website.)

Year	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000
Average number of persons per Household	5.55	5.28	5.09	5.04	4.93	4.76	4.54	4.34	4.11	3.67	3.37	3.35	3.14	2.76	2.63	2.59

To examine the relationship between the year and average number of persons per household, following information has been used.

$$\sum x = 30800 \quad \sum y = 65.15 \quad \sum xy = 124701.6 \quad \sum (x^2) = 59324000 \quad \sum (y^2) = 280.4429$$

Where  $x$  is the year and  $y$  is the average number of persons per household in the United States.

Calculate Pearson's correlation coefficient between the two variables (Give your answer in four decimal places).  
(Type your answer within the given space)

Answer: \_\_\_\_\_

Question 6  
Not yet answered  
Marked out of  
10.00  
Flag question



## Online Exams

Sri Lanka Institute of Information Technology

A random sample of 25 Candy Bars has an average sugar content of 9.8 grams. From the past standard deviation as 1.3. Construct 90% confidence interval for metal bars.

Lower Limit Equation :

$$\bar{x} - Z(5\%) * (\sigma/\sqrt{n})$$

Upper Limit Equation :

$$\bar{x} + Z(5\%) * (\sigma/\sqrt{n})$$

Critical value :

1.64

Lower Limit value :

9.374

Upper Limit value :

10.226

3D

TAKING YOU TO A  
NEW REALITY

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1. Commuting: This course has examples at some other way (e.g. by Walk/take the bus/get a ride). The campus sponsors a "Spare the Air" day to encourage people not to drive to campus. After the program, they want to know whether these proportions have changed. To test this hypothesis, a random sample of 300 students on a particular day was asked how they got to campus. Following are the results.

Transportation mode	Drive	Bike	Other	Total
Frequency	100	150	50	300

Do the above results suggest that the past record for proportions have changed? Use 5% level of significance.

1. Hypothesis:

H<sub>0</sub>: Past record for mode of transportation hasn't changed. [P(Drive) = 0.3, P(Bike) = 0.6 and P(Other) = 0.1] Vs. H<sub>1</sub>: At least one proportion has changed.

2. Distribution of test statistic: Chi squared distribution with 2 degrees of freedom.

3. Significance level: 5%

4. Critical value: 5.99146

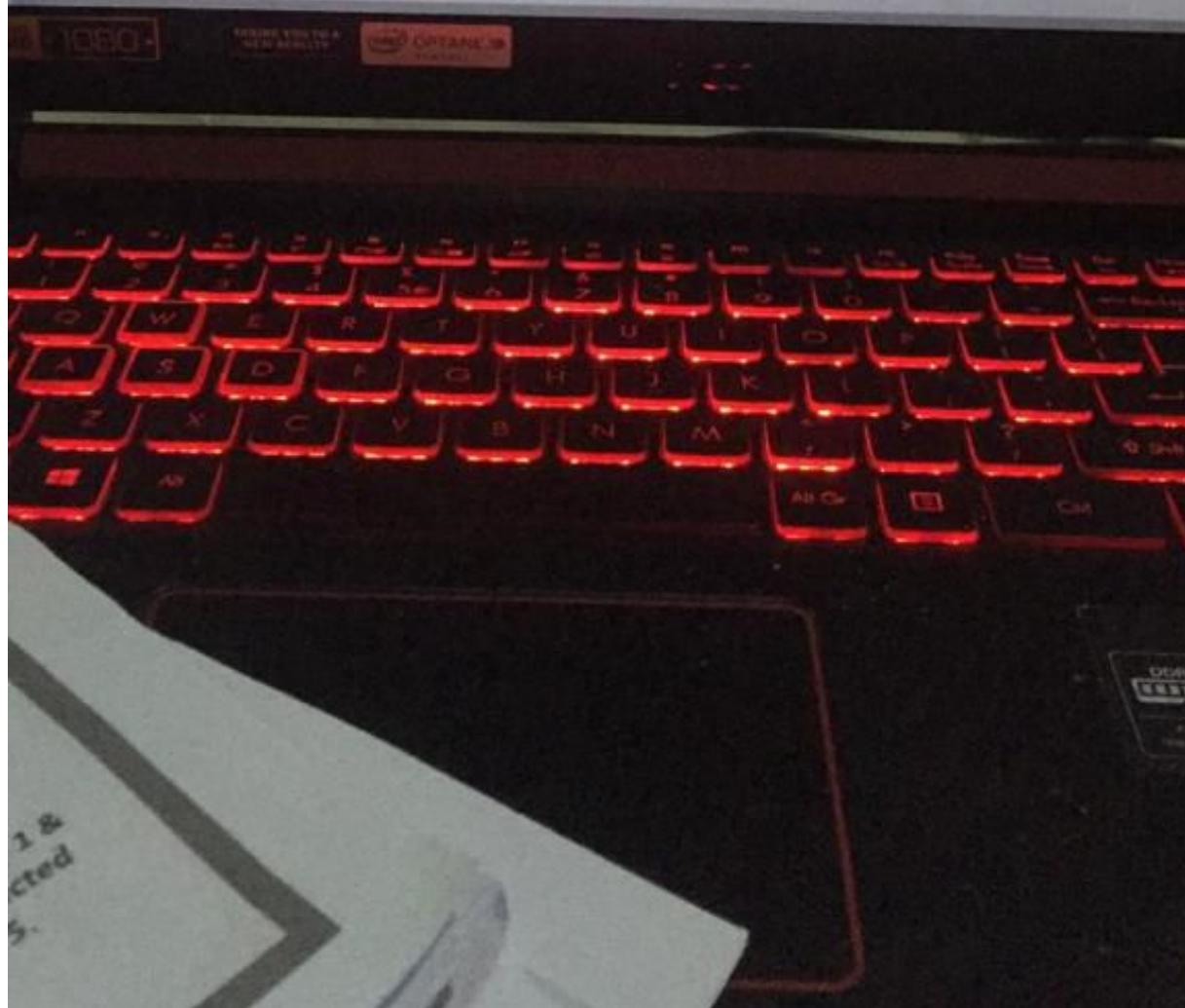
5. Rejection criteria: Reject H<sub>0</sub> if  $\chi^2_{cal} > 5.99146$  at 5% level of significance.

6. Test value: 9.3285

7. Conclusion (in Scientific terms): Since  $t_{cal} \approx 12.512 > 2.353$ , do not reject H<sub>0</sub> at 10% level of significance.

8. Conclusion (in General terms):

Therefore there is enough evidence to suggest that there is at least one proportion which has changed after the program.



U.S. Census Bureau estimates of the average number of persons per household in the United States for census years between 1850 and 2000 are shown in the following table with the ANOVA output for the fitted regression model. (These data are in the file perhouse on the companion website.)

Year	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000
Average number of persons per Household	5.55	5.28	5.09	5.04	4.93	4.76	4.54	4.34	4.11	3.67	3.37	3.35	3.14	2.76	2.63	2.59

#### Analysis of Variance Table

Response: Average number of persons per household

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Year	A	14.9164	F	G	5.875e-14***
Residuals	B	D		0.0174	
Total	C	E			

Signif. Codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Find values marked A, B, C, D, E, F and G in the ANOVA table.

1. A: 15



2. B:

3. C:

4. D: (Keep all the decimal places in the answer)

5. E: (Keep all the decimal places in the answer)

6. F: 944266667 (Keep all the decimal places in the answer)

7. G: (Round off the answer up to the fourth decimal point)

(Type your answers within the given spaces)



## Online Exams

Sri Lanka Institute of Information Technology

4  
answered  
out of  
question

A researcher is interested about a portion of a classic data set called the "pilot plant data" in Fitting Equations to Data by Daniel and Wood, published in 1971. The data set contains 10 data points. The response y is the acid content of material produced by titration, whereas the regressor x is the organic acid content produced by extraction and weighing. Following information is given.

$$\sum x = 999 \quad \sum y = 670 \quad \sum xy = 74058 \quad \sum (x^2) = 11990 \quad \sum (y^2) = 47670$$

Calculate Pearson's correlation coefficient between the two variables (give your answer in four decimal places).  
(Type your answer within the given space)

Answer:

Next page

Q.

0.00  
Marked out of  
7.00

Flag question

2000 are shown in the following table with the ANOVA output for the fitted regression model. (These data are in the file perhc companion website.)

Year	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000
Average number of persons per Household	5.55	5.28	5.09	5.04	4.93	4.76	4.54	4.34	4.11	3.67	3.37	3.35	3.14	2.76	2.63	2.59

#### Analysis of Variance Table

Response: Average number of persons per household

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Year	A	14.9164	F	G	5.875e-14***
Residuals	B	D	0.0174		
Total	C	E			

Signif. Codes: 0 \*\*\* 0.001 \*\* 0.01 \* 0.05 . 0.1 ' 1

Find values marked A, B, C, D, E, F and G in the ANOVA table.

1. A: 1

2. B: 14

3. C: 15

4. D: 0.2436 (Keep all the decimal places in the answer)

5. E: 15.16 (Keep all the decimal places in the answer)

6. F: 14.9164 (Keep all the decimal places in the answer)

7. G: 857.2644 (Round off the answer up to the fourth decimal point)

(Type your answers within the given spaces)

**Question 1**  
Not yet answered  
Marked out of 7.00

U.S. Census Bureau estimates of the average number of persons per household in the United States for census years 2000 are shown in the following table with the ANOVA output for the fitted regression model. (These data are in the companion website.)

Year	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000
Average number of persons per Household	5.55	5.28	5.09	5.04	4.93	4.76	4.54	4.34	4.11	3.67	3.37	3.35	3.14	2.76	2.63	2.59

#### Analysis of Variance Table

Response: Average number of persons per household

	Df	Sum Sq	Mean Sq	Fvalue	Pr(>F)
Year	A	14.9164	F	G	5.875e-14***
Residuals	B	D	0.0174		
Total	C	E			

Signif. Codes: 0 \*\*\*\* 0.001 \*\*\* 0.01 \*\* 0.05 \* 0.1 ' 1

Find values marked A, B, C, D, E, F and G in the ANOVA table.

1. A :

2. B :

3. C :

4. D :  (Keep all the decimal places in the answer)

5. E :  (Keep all the decimal places in the answer)

6. F :  (Keep all the decimal places in the answer)

7. G :  (Round off the answer up to the fourth decimal point)

(Type your answers within the given spaces)



2

answered  
out of

(question)

A random sample of 45 metal bars has an average weight of 13.5 Kgs with 1.2 standard deviation. Construct 95% confidence interval for the true mean lifetime ( $\mu$ ) of this metal bars.

a) Lower Limit Equation:  \*

b) Upper Limit Equation :  \*

c) Critical value:  \*

d) Lower Limit value:  

e) Upper Limit value:  \*

[Next page](#)

# Online Exams

## Sri Lanka Institute of Information Technology

- Group of researchers have found that, in a particular junction, on average, there will be 6 road accidents in a given month. Using Poisson approximation, calculate the probability that,
- a) There will be at least 3 road accidents in a given month.
  - b) There will be at least 4 road accidents in a given month.
  - c) There will be at least 5 road accidents in a given month.

Answers within the given spaces (Keep all decimal places of the final answer).

ANSWER

ANSWER

	$\leq 4$	5	6	$\geq 7$	
Abstainer	797	622	496	700	2615
Non-Binge	711	1139	984	2128	4962
Occasional Binge	247	443	471	1698	2859
Frequent Binge	167	448	360	2218	3193
Total	1922	2652	2311	6744	13629

1. Hypothesis:

H<sub>0</sub>: There is a relationship in between type of drinker and definition of binge drinking for men Vs. H<sub>1</sub>: There is no relationship in between type of drinker and definition of binge drinking for men

Choose...

H<sub>0</sub>: There is no relationship in between type of drinker and definition of binge drinking for men Vs. H<sub>1</sub>: There is a relationship in between type of drinker and definition of binge drinking for men

2. H<sub>0</sub>: Type of drinker and definition of binge drinking for men are dependent Vs. H<sub>1</sub>: Type of drinker and definition of binge drinking for men are independent

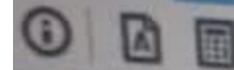
3. H<sub>0</sub>: There is an association in between type of drinker and definition of binge drinking for men Vs. H<sub>1</sub>: There is no association in between type of drinker and definition of binge drinking for men

4. Critical value: Choose...

5. Rejection criteria: Choose...

6. Test value (Round off to the nearest integer): Choose...

7. Conclusion (In Scientific term): Choose...



# Online Exams

Sri Lanka Institute of Information Technology

A random sample of 45 metal bars has an average weight of 13.5 Kgs with 1.2 standard deviation. Construct 95% confidence interval for the true mean lifetime ( $\mu$ ) of this metal bars.

a) Lower Limit Equation:  $X \bar{ } - Z(2.5\%) * (S/\sqrt{n})$

b) Upper Limit Equation :  $X \bar{ } + Z(2.5\%) * (S/\sqrt{n})$

c) Critical value: Choose...

Choose...

1.96

1.64

-1.64

2.58

2.57

d) Lower Limit v:

Choose...

e) Upper Limit v:

Choose...

Print Page



## Online Exams

Sri Lanka Institute of Information Technology

**Question 3**

Not yet answered

Marked out of  
3.00

Flag question

A researcher is interested in finding whether there is any relationship between temperature and the proportion of impurities passing through solid helium. Temperature is measured in degrees centigrade ( $^{\circ}\text{C}$ ). He used a sample size of 10 to study this relationship. Following information is given.

$$\sum x = -2685.6 \quad \sum y = 7.007 \quad \sum xy = -1893.5644 \quad \sum (x^2) = 721454.96 \quad \sum (y^2) = 5.634547$$

Where  $X$  is the temperature and  $Y$  is the proportion of impurities.

Calculate Pearson's correlation coefficient between the two variables (Give your answer in four decimal places).

(Type your answer within the given space)

Answer:

Next page

**Quiz navigation****DECLARATION**

1

**QUESTIONS**

1	2	3	4
9	10		

**FEEDBACK**

11

Finish attempt ...

Time left: 1:14:22

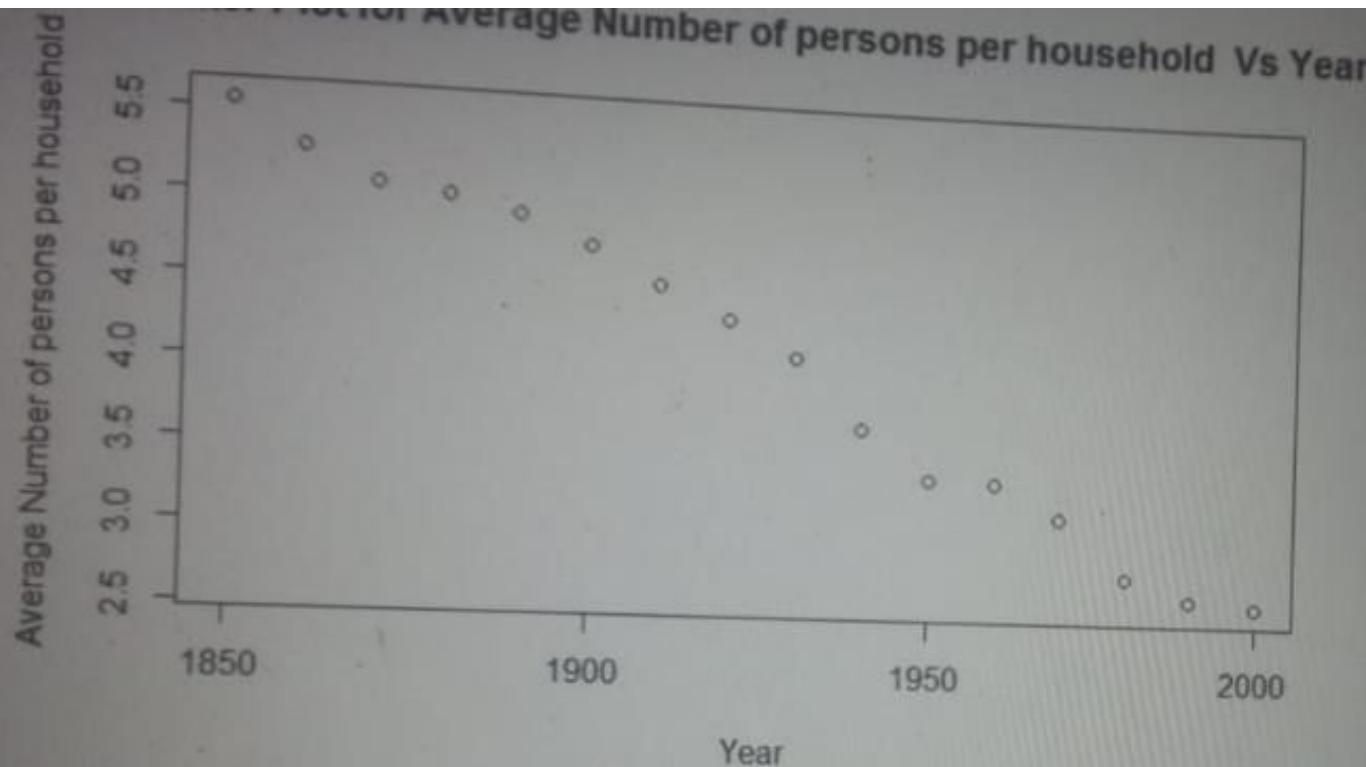
A retail merchant in USA has conducted a survey to determine the relationship in between weekly advertising weeks and weekly advertising expenditure (\$) and weekly sales (\$) have recorded for those 12 weeks. Following:  
 $\sum x = 405$      $\sum y = 5510$      $\sum xy = 192775$      $\sum (x^2) = 15275$      $\sum (y^2) = 2567600$

Where X is the weekly advertising expenditure and Y is the weekly sales.

Calculate Pearson's correlation coefficient between the two variables (Give your answer in four decimal places)  
(Type your answer within the given space)

Answer: -1.0023





R outputs of the regression model are shown below.

#### Regression Model

##### Coefficients

Intercept	Year
44.39213	-0.02095

A candy company, which produced candy products, required to test whether the average sugar content of a single toffee is different with the value, which is marked on the label. In the lab, it is resulted as 2.5 g. From the previous studies it has been discovered that, sugar content has standard deviation of 0.15 and it is normally distributed. A group of researchers conducted an experiment to test this by taking a random sample of 28 toffees. Sample average sugar content was 2.4 g. Test the hypothesis at 5% level of significance.

- a) Hypothesis :  $H_0: \mu \leq 2.5$  Vs  $H_1: \mu > 2.5$
- b) Test Statistic :  $Z = (\bar{X} - \mu) / (\sigma/\sqrt{n})$
- c) Distribution of test statistic : Normal Distribution ( $N(0,0.15)$ )
- d) Critical value : +1.96 and -1.96
- e) Rejection criteria : Reject  $H_0$  if  $Z_{\text{cal}} > 1.96$  or  $Z_{\text{cal}} < -1.96$  at 5% level of significance
- f) Test value : -3.53
- g) Conclusion (In Scientific term) : Since  $Z_{\text{cal}} = -3.53$  is less than -1.96, we reject  $H_0$  at 5% level of significance
- h) Conclusion (In general term) : There is enough evidence to suggest that the average sugar content is greater than to the value in the label



In an experiment,  $P(A) = 0.4$  and  $P(B) = 0.7$  and  $P(A \cup B)' = 0.2$ . Are A and B independent?

Select one:

- Yes
- No
- Given information is not enough to decide.

Moodle

Online Exams

Sri Lanka Institute of Information Technology

Section 3  
Not yet answered  
Marked out of 8.00  
Flag question

A company, which produced candy products, required to test whether the average sugar content of a single toffee is different from what is marked on the label. In the label it is marked as 2.5 g. From the previous studies it has been discovered that, sugar has a standard deviation of 0.15 and it is normally distributed. A group of researchers conducted an experiment to test this by taking a sample of 28 toffees. Sample average sugar content was 2.4 g. Test the hypothesis at 5% level of significance.

a) Hypothesis       $H_0: \mu \leq 2.5$  Vs  $H_1: \mu > 2.5$

b) Test Statistic       $Z = (\bar{x} - \mu) / (\sigma/\sqrt{n})$

c) Distribution of test statistic      Normal Distribution ( $\mu=0.0, \sigma=0.15$ )

d) Critical value      +1.96 and -1.96

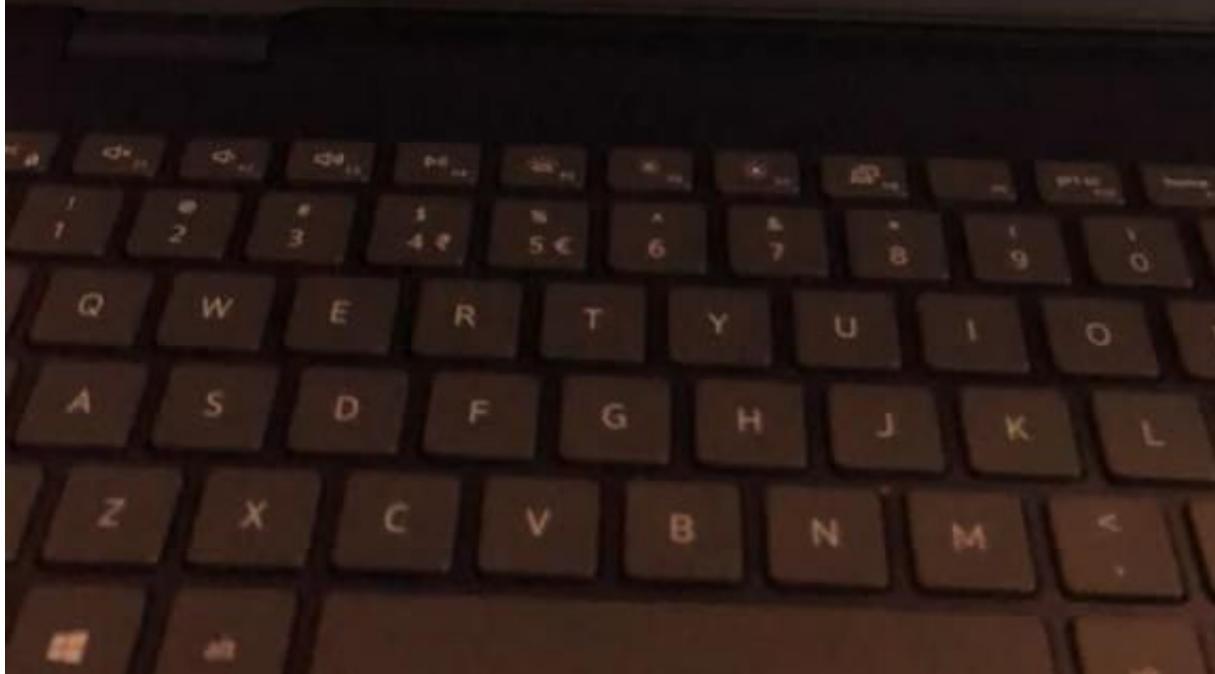
e) Rejection criteria      Reject  $H_0$  if  $Z_{cal} > 1.96$  or  $Z_{cal} < -1.96$  at 5% level of significance

f) Test value      -3.53

g) Conclusion (In Scientific term)      Since  $Z_{cal} = -3.53$  is less than -1.96, we reject  $H_0$  at 5% level of significance

h) Conclusion (In general term)      There is enough evidence to suggest that the average sugar content is greater than the value marked on the label.

DELL



A random sample of 42 batteries, has on average life time of 88.5 hrs with 7.6 standard deviation. Construct a 99% confidence interval for the true mean lifetime ( $\mu$ ) of this brand of batteries.

a) Lower Limit Equation : Choose... ▾

b) Upper Limit Equation : Choose... ▾

c) Critical value : Choose... ▾

d) Lower Limit value : Choose... ▾

e) Upper Limit value : Choose... ▾



# Online Exams

Sri Lanka Institute of Information Technology

it19391946 Wijerathne H.

Question 10

Not yet answered

Marked out of  
9.00

Flag question

A typist of a certain Book Publishing Company can type 7 pages per day. Without using any approximation, calculate the probability that,

a) The typist type more than 8 pages per day

b) The typist type fewer than 3 pages per day

c) Using a suitable approximation, find the probability that the typist type less than or equal to 4 pages per day.

Type your answers within the given spaces [Keep all decimal places of the final answer].

Next page

≡ Quiz navigation

DECLARATION

I

QUESTIONS

1	2	3	4	5	6
9	10				

FEEDBACK

11

Finish attempt

Time left 0:19:23

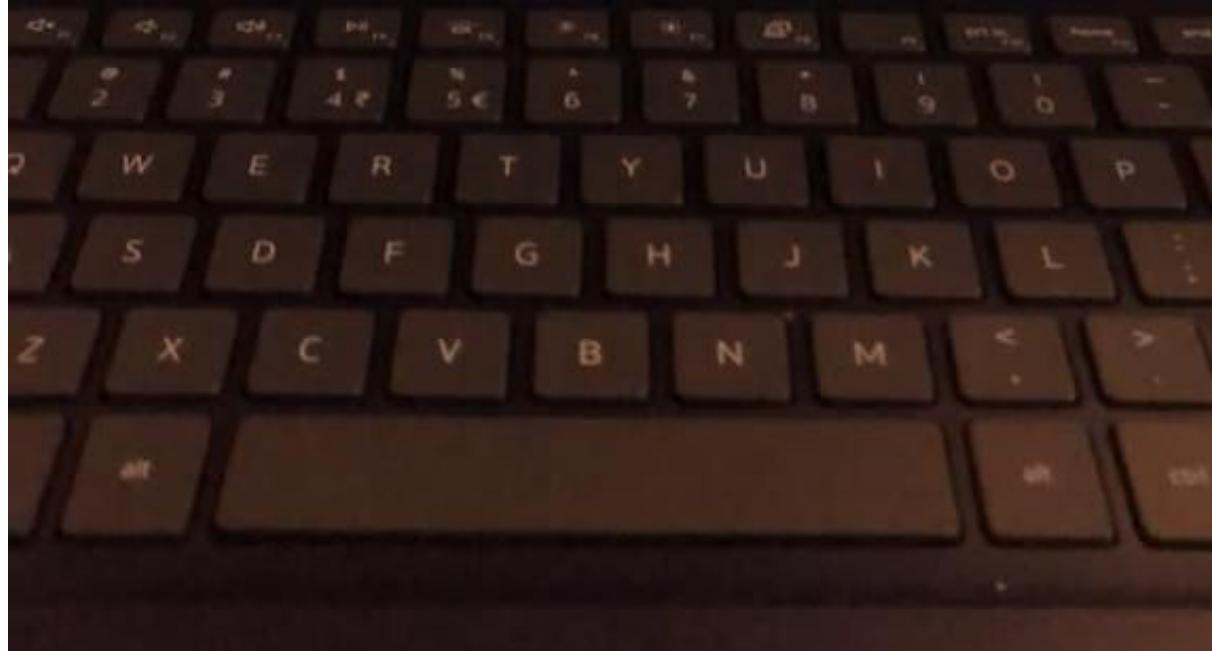
## Online Exams

Sri Lanka Institute of Information Technology

A company, which produced candy products, required to test whether the average sugar content of a single toffee is different with the value which is marked on the label. In the label it is marked as 2.5 g. From the previous studies it has been discovered that, sugar content has standard deviation of 0.15 and it is normally distributed. A group of researchers conducted an experiment to test this by taking a random sample of 28 toffees. Sample average sugar content was 2.4 g. Test the hypothesis at 5% level of significance.

- a) Hypothesis :  $H_0: \mu \leq 2.5$  Vs  $H_1: \mu > 2.5$
- b) Test Statistic :  $Z = (\bar{X} - \mu) / (0.15/\sqrt{n})$
- c) Distribution of test statistic : Normal Distribution ( $N(0,0.15)$ )
- d) Critical value : +1.96 and -1.96
- e) Rejection criteria : Reject  $H_0$  if  $Z_{cal} < -1.96$  or  $Z_{cal} > 1.96$  at 5% level of significance
- f) Test value : -3.53
- g) Conclusion (in Scientific term) : Since  $Z_{cal} = -3.53$  is less than -1.96, we reject  $H_0$  at 5% level of significance
- h) Conclusion (in general term) : There is enough evidence to suggest that the average sugar content is greater than to the value in the label

DELL



Transportation mode	Drive	Bike	Other	Total
Frequency	100	150	50	300

Do the above results suggest that the past record for proportions have changed? Use 5% level of significance.

1. Hypothesis:

H<sub>0</sub>: Past record for mode of transportation hasn't changed: [Pr(Drive) = 0.3, Pr(Bike) = 0.6 and Pr(Other) = 0.1]

2. Distribution of test statistic:

Chi squared distribution with 2 degrees of freedom

3. Significance level:

5%

4. Critical value:

5.99146

5. Rejection criteria:

Reject H<sub>0</sub> if  $\chi^2_{\text{Cal}} > 5.99146$  at 5% level of significance

6. Test value:

9.3285

7. Conclusion (in Scientific term):

Since  $\chi^2_{\text{Cal}} = 12.5272 > 9.3285$ , do not reject H<sub>0</sub> at 10% level of significance

8. Conclusion (in General term):

Therefore there is enough evidence to suggest that there is at least one proportion which has changed after

QUESTIONS

1 2 3 4 5 6 7

8 9 10

FEEDBACK

11

Finish attempt...

Time left 1:17:06



# Online Exams

Sri Lanka Institute of Information Technology

A company, which produced candy products, required to test whether the average sugar content of a single toffee is different with the value which is marked on the label. In the label it is marked as 2.5 g. From the previous studies it has been discovered that, sugar content has standard deviation of 0.15 and it is normally distributed. A group of researchers conducted an experiment to test this by taking a random sample of 28 toffees. Sample average sugar content was 2.4 g. Test the hypothesis at 5% level of significance.

a) Hypothesis

: Choose...

b) Test Statistic

: Choose...

c) Distribution of test statistic

: Choose...

d) Critical value

: Choose...

e) Rejection criteria

: Choose...

f) Test value

: Choose...

g) Conclusion (In Scientific term):

: Choose...

h) Conclusion (In general term)

: Choose...



# Online Exams

Sri Lanka Institute of Information Technology

A researcher is interested in finding whether there is any relationship in between measured in degrees centigrade ( °C ). He used a sample size of 10 to study this rel

## Analysis of Variance Table

Response: Proportion of impurities

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Temperature	A	0.65836	F	G	1.999e-05***
Residuals	B	D	0.00830		
Total	C	E			

Signif. Codes: 0 '\*\*\*\*' 0.001 \*\*\*' 0.01 \*\*' 0.05 : ' 0.1 '' 1

Find values marked A, B, C, D, E, F and G in the ANOVA table.

1. A :
2. B :
3. C :
4. D :  (Keep all the decimal places in the answer)
5. E :  I (Keep all the decimal places in the answer)
6. F :  (Keep all the decimal places in the answer)
7. G :  (Round off the answer up to the fourth decimal point)

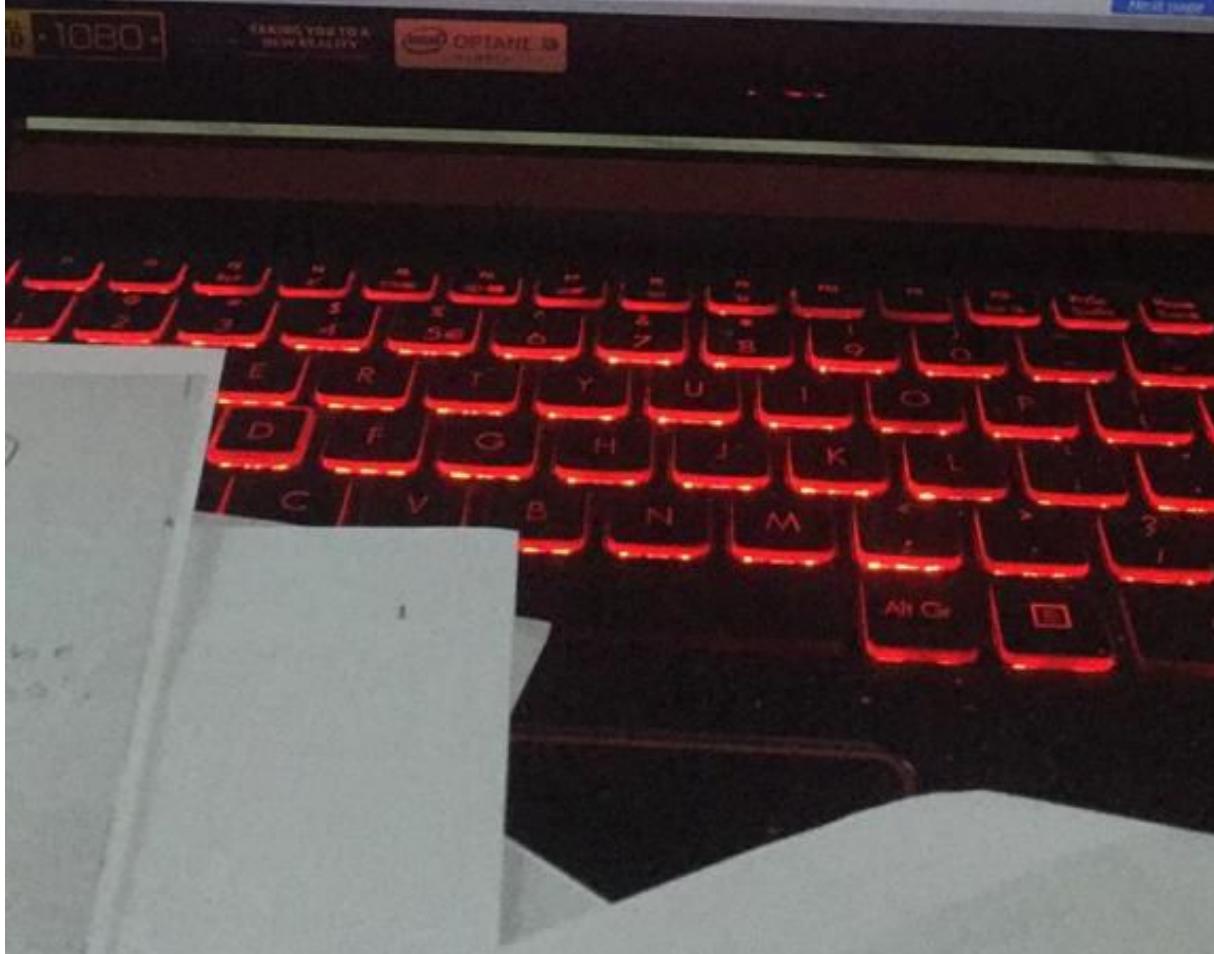
(Type your answers within the given spaces)

# Online Exams

Sri Lanka Institute of Information Technology

A company, which produced candy products, required to test whether the average sugar content of a single toffee is different with the value which is marked on the label. In the label it is marked as 2.5 g. From the previous studies it has been discovered that, sugar content has standard deviation of 0.15 and it is normally distributed. A group of researchers conducted an experiment to test this by taking a random sample of 28 toffees. Sample average sugar content was 2.4 g. Test the hypothesis at 5% level of significance.

- a) Hypothesis :  $H_0: \mu = 2.5$  VS  $H_1: \mu \neq 2.5$
- b) Test Statistic :  $Z = (\bar{X} - \mu) / (\sigma / \sqrt{n})$
- c) Distribution of test statistic : Normal Distribution ( $N(0,1)$ )
- d) Critical value : Choose...
- e) Rejection criteria : Choose...
- f) Test value : Choose...
- g) Conclusion (in Scientific term) : Choose...
- h) Conclusion (in general term) : Choose...



# Online Exams

Sri Lanka Institute of Information Technology

A Manager of a certain super market is concerning about the number of customers arrive within the first hour since it is opened in the morning. On average 9 customers are coming within the first hour. Without using any approximation, calculate the probability that,

a) Fewer than 5 people are arriving to the Super Market.

b) At least 6 people are arriving to the Super Market.

c) Using suitable approximation, find the probability that more than 10 people are arriving to the Super Market.

Type your answers within the given spaces [Keep all decimal places of the final answer].

Next page

er has found that average life time of a truck tire is 50500 miles with a standard deviation of 2500 miles. Assuming that life follows a normal distribution, find the following probabilities.

ability that life time of a truck tire is at least 60000 miles :  (Keep all the decimal places in the answer)

ability that life time of a truck tire is 45000 to 58900 miles :  (Keep all the decimal places in the answer)

is the life time (in miles) where 38% of truck tires took less than this life time?  miles (Give the answer to the nearest integer)

answers within the given spaces)



## Question 5

Not yet answered

Marked out of 3.00

Flag question

U.S. Census Bureau estimates of the average number of persons per household in the United States for census years between 1850 and 2000 are shown in the following table. (These data are in the file perhouse on the companion website.)

Year	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000
Average number of persons per Household	5.55	5.28	5.09	5.04	4.93	4.76	4.54	4.34	4.11	3.67	3.37	3.35	3.14	2.76	2.63	2.59

To examine the relationship between the year and average number of persons per household, following information has used.

$$\sum x = 30800 \quad \sum y = 65.15 \quad \sum xy = 124701.6 \quad \sum (x^2) = 59324000 \quad \sum (y^2) = 280.4429$$

Where X is the year and Y is the average number of persons per household in the United States.

Calculate Pearson's correlation coefficient between the two variables (Give your answer in four decimal places).

(Type your answer within the given space)

Answer: -0.9919

**Coefficients**

Intercept	Organic acid content
31.7087	0.3533

**Analysis of Variance Table**

Response: Acid content of material

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Organic acid content	A	C	2517.02	G	2.278e-05***
Residuals	B	262.98	E		
Total	9	D	F		

Signif. Codes: 0 \*\*\* 0.001 \*\* 0.01 \* 0.05 . 0.1 '' 1

- i. What can be concluded using the scatter plot? There is a positive linear relationship in between organic acid content and acid content of material.
- ii. State the estimated regression equation. Estimated Acid content of material = 31.7087 + 0.3533 (Organic acid content)
- iii. State in how much acid content of material will change if organic acid content increased by one unit. Acid content of material will increase by 0.3533 units.
- iv. Does slope of the Regression line is significant ( $\beta \neq 0$ )? Use  $\alpha = 5\%$ . Yes. Regression line is significant.
- v. Use the regression equation to predict the acid content of material if organic acid content is 143 units. 82.2306 units



# Online Exams

Sri Lanka Institute of Information Technology

In an experiment,  $P(A) = 0.4$  and  $P(B) = 0.7$  and  $P(A \cup B)' = 0.2$ . Are A and B independent?

Select one:

- Yes
- No
- Given information is not enough to decide.



Total C E

Signif. Codes: 0 \*\*\*\* 0.001 \*\*\* 0.01 \*\* 0.05 \* 0.1 † 1

i. What can be concluded using the scatter plot?

There is a negative linear relationship between year and average number of persons per household in US.

ii. State the estimated regression equation.

Estimated Year = 44.39213 - 0.02095 (Average number of persons per household)

iii. State in how much average number of persons per household will change if one year increased.

Average number of persons per household in US will decrease by 0.02095 units.

iv. Does slope of the Regression line is significant ( $\beta \neq 0$ )? Use  $\alpha = 5\%$ .

Yes, Regression' line is significant.

v. Use the regression equation to predict average number of persons per household in year 1956.

3.4139



## Online Exams

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### Sri Lanka Institute of Information Technology

Question 2

Not yet answered

Marked out of  
2.00

Flag question

A Continuous random variable X has a probability density function given by,

$$f_X(x) = \begin{cases} k(x^2 - 3) & ; -2 \leq x \leq 2 \\ 0 & ; \text{otherwise} \end{cases}$$

- a) Find k value (Round off your answer to three decimal values) :
- b) Find Expected Value (Round off your answer to three decimal values) :
- c) Find Variance (Round off your answer to three decimal values) :
- d) Find  $F_X(1.2)$  (Round off your answer to three decimal values) :

(Type the correct answers within the given spaces)

## IT2110 - Final Examination - Session 01 - Nov - 2020

### **IT2110 - Final Examination - Session 01 - Nov - 2020**

This paper includes 10 main questions (5 MCQ questions and 5 Short answer questions) with sub questions. Duration is 2 hours. Backward navigation has disabled. Keep your Statistical table (Hard copy), Equation sheet (Hard copy) and Calculator with you before the exam starts.

There will be a text box at the end as the last question, asking any issues or errors in the quiz which is optional. If you think there is an error in a question, write that question number in that box (Better if you can give a short description).

This quiz has been configured so that students may only attempt it using the Respondus LockDown Browser.

Attempts allowed: 1

This quiz opened at Saturday, 28 November 2020, 11:30 AM

This quiz will close on Saturday, 28 November 2020, 2:00 PM.

Time limit: 2 hours

### Summary of your previous attempts

State	Review
-------	--------

Finished

Submitted Saturday, 28 November 2020, 1:31 PM

No more attempts are allowed

[Back to the course](#)

hours with 2.25 standard deviation. Test the hypothesis at 5% level of significance.

- a) Hypothesis :  ▾
- b) Test Statistic (Under H0) :  ▾
- c) Distribution of test statistic :  ▾
- d) Critical value :  ▾
- e) Rejection criteria :  ▾  
Choose...  
There is enough evidence to suggest that average relief time is equal to 6.5 hrs.  
There is no enough evidence to suggest that average relief time is greater than 7.5 hrs.  
There is enough evidence to suggest that average relief time is greater than 6.5 hrs.  
There is enough evidence to suggest that average relief time is less than 6.5 hrs.  
There is enough evidence to suggest that average relief time is greater than 7.5 hrs.
- f) Test value
- g) Conclusion (In Scientific term)
- h) Conclusion (in general term) :  ▾

Next page

A online video store rents movies to members. Each movie in the store has a title and is identified by a movie number. A movie can be in VHS, VCD, or DVD or any other format. Each movie can be stored in multiple format types as well. Each movie belongs to one of a given set of categories like action, adventure, comedy , etc. There are two types of members, Golden Members who require their credit card and can rent more than one movie at a time. Bronze Members who don't require their credit card and can rent only one movie at a time.

Which of the following statements are correct with respect to the above description.

Select one or more:

- a. Categories can exist without movies
- b. The store is an entity in the EER diagram
- c. Movie types could be represented by an entity name format
- d. There are no descriptive attributes for relationships in the diagram
- e. Golden member and Bronze member cover Member

$E(X)$  and  $E(X^2)$  of a discrete random variable are -1.4 & 2 respectively. What is  $V[X]$ ?

Select one:

- 0.4
- 0.4
- 1.4
- 0.04
- None of the above

The number of industrial injuries per working week in a particular factory is known to follow a Poisson distribution with mean 0.5. Find the probability that.

in particular week there will be less than 2 accidents.

0.9098

in particular week there will be more than 5 accidents.

0.00001

in a 3 week period there will be no accidents.

0.22313

Let A and B be events with  $P(A)=0.6$ ,  $P(B)=0.3$  and  $P(A \cap B)=0.2$ . What is  $P(A \cup B)$ ?

Select one:

- 0.7
- 0.9
- 0.6
- 0.5
- None of the above

Since the population size is always larger than the sample size, the sample statistic

Select one:

- can never be larger than the population parameter
- can never be equal to the population parameter
- some cases it can be equal to the population parameter
- can never be smaller than the population parameter
- None of the above

Patients arrive at a hospital accident and emergency department at a random rate of 6 per hour.

Find the probability that during 15 minutes period the number of patients arriving at the hospital accident and emergency department is .

Exactly 5 ?  

At least 7 ?  

A garment factory produces large lots of a certain type of garments. What is the mean of the number of defective units found in a sample of 10 units if the lot is 2% defective?

Select one:

- 5
- 2
- 0.2
- 0.98
- None of the above

After studying a couple's family history, a doctor determines that the probability of any child born to this couple having a gene for disease X is 1 out of 4. If the couple has three children, what is the probability that exactly two of the children have the gene for disease X?

Select one:

- 9/64
- 10/64
- 12/64
- 7/64
- None of the above

A garment factory produces large lots of a certain type of garments. What is the mean of the number of defective units found in a sample of 10 units if the lot is 2% defective?

Select one:

- 5
- 2
- 0.2
- 0.98
- None of the above

Consider a computer system with Poisson job-arrival stream at an average of 2 per minute. Determine the probability that in any one-minute interval there will be

0 jobs

Choose...

exactly 2 jobs

Choose...

at least 3 arrivals

Choose...

Choose...

0.86466

0.13534

0.27067

None of the above

0.59399

0.32332

What is the probability that the sum of two die will be greater than 8, given that the first die is 6?

Select one:

- 1/2
- 3/4
- 2/3
- 7/12
- None of the above

Patients arrive at a hospital accident and emergency department at a random rate of 6 per hour.

Find the probability that during 15 minutes period the number of patients arriving at the hospital accident and emergency department is ,

Exactly 5 ?

Choose... ▾

At least 7 ?

Choose... ▾

Choose...

0.01858

0.00039

0.00098

0.00093

0.01214

0.01412

The average rate of telephone calls in a busy reception is 4 per minute. Calculate the probability that,

at least 2 telephone calls will be received in any minute

Choose...

any minute with free of telephone calls

Choose...

5 telephone calls will be received in any minute

✓ Choose...

0.01832

0.15629

0.90842

None of the above

0.37116

0.21487

Since the population size is always larger than the sample size, the sample statistic

Select one:

- can never be larger than the population parameter
- can never be equal to the population parameter
- some cases it can be equal to the population parameter
- can never be smaller than the population parameter
- None of the above

Let  $E$  be an event and  $E'$  is its complement. If  $P(E) = 1/3$ , what is  $P(E')$ ?

Select one:

- $P(E') = P(E) = 1/3$
- $P(E') = P(E) - 1 = -2/3$
- $P(E') = 2 * P(E) = 2/3$
- $P(E') = 1 - P(E) = 2/3$
- None of the above

After studying a couple's family history, a doctor determines that the probability of any child born to this couple having a gene for disease X is 1 out of 4. If the couple has three children, what is the probability that exactly two of the children have the gene for disease X?

Select one:

- 9/64
- 10/64
- 12/64
- 7/64
- None of the above

Three bulbs are chosen from 15 bulbs of which 5 are defective. The probability that none is defective is,

Select one:

- 1/125
- 8/27
- 27/125
- 1/27
- None of the above

The conditional probability of x given y is:

Select one:

- the probability that x and y occur jointly
- the probability that y occurs if x has already occurred
- the probability that x occurs if y has already occurred
- the marginal probability of x minus the marginal probability of y
- None of the above

Let A and B be events with  $P(A^C) = 1/2$ ,  $P(A \cup B) = 3/4$ ,  $P(A|B) = 1/3$  and  $P(B^C) = 5/8$  where  $A^C$  is the complement of A. The

Select one:

- 1/8
- .3/8
- 6/8
- 7/8
- None of the above



# Online Exams

Sri Lanka Institute of Information Technology

Question 13

You answered

Mark out of

Flag question

The mean and the median of the set given below

11, 26, 43, 15, 60, 18, 25

Select one:

- Mean = 28.29 and Median = 25
- Mean = 25 and Median = 28.5
- Mean = 27.29 and Median = 26.5
- Mean = 28.5 and Median = 27
- None of the above

Let  $X$  be the number of passengers in a particular vehicle and it's probability distribution. Find the probability of having at least two passengers in a given vehicle ?

$X$	0	1	2	3	4
$P(X=x)$	0.2	0.1	a	0.3	0.1

Select one:

- 0.5
- 0.7
- 0.6
- 0.2
- 0.4





## Online Exams

Sri Lanka Institute of Information Technology

3  
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estion

In an experiment of rolling two dice, the first die shows a ONE and the other die rolls under the table and you cannot see it. Now, what is the probability that both die show ONE?

Select one:

- 1/3
- 1/6
- 1/36
- 9/36
- None of the above



Next page



## Online Exams

Sri Lanka Institute of Information Technology

In a classroom, 30% of students are doing Mathematics while 60% are doing Statistics. 10% are doing both of these subjects. What percentage is doing none of these subjects?

Select one:

- 0.6
- 0.3
- 0.5
- 0.2
- 0.1

[Next page](#)

# Online Exams

Sri Lanka Institute of Information Technology

Consider a computer system with Poisson job-arrival stream at an average of 2 per minute. Determine the probability that in any one-minute interval there will be 0 job arrivals.

Select one:

- 0.28811
- 0.41136
- 0.17492
- 0.03655
- 0.13534

Next page



# Online Exams

Sri Lanka Institute of Information Technology

An example for a nominal categorical variable is,

Select one:

- Importance of culture to respondent (very, somewhat, or not very important)
- Opinion about a new political law (favor or oppose)
- Length of forearm from elbow to wrist (in centimeters)
- Number of songs on a digital music player
- None of the above



## Online Exams

Sri Lanka Institute of Information Technology

Question 1

Not yet answered

Marked out of  
1.00

Flag question

Which of the following is not a form of non-probability sampling?

Select one:

- Quota sampling.
- Convenience sampling.
- Cluster sampling.
- Purposive/Judgement sampling.
- They are all forms of non-probability sampling.



# Online Exams

Sri Lanka Institute of Information Technology

Find mean and standard deviation of the following data set.

13.5, 12.6, 14.6, 19.2, 11.6, 24.3, 17.7

Mean

Choose... ▾

16.214

Standard deviation

Choose... ▾

4.154



# Online Exams

Sri Lanka Institute of Information Technology

Question 15

Not yet answered  
Marked out of  
1.00

Flag question

Patients arrive at a hospital accident and emergency department at a random rate of 6 per hour.

Find the probability that during 90 minutes period the number of patients arriving at the hospital accident and emergency department is .

At least 10

0.41259

D, 4126

Exactly 7?

Choose...

Choose...

0.08392

0.41259

0.55029

0.39370

0.11712

0.13768

Choose...

Choose...

0.08392

0.41259

0.55029

0.39370

0.11712

0.13768

O, 1171

Next page



Select the **incorrect** statement?

Select one:

- Histogram can be used to describe numerical variables
- Pie chart can be used to describe one categorical variable
- Two way table can be used to describe two categorical variables
- Boxplot can be used to describe only one categorical variable
- Stem and leaf plot can be used to describe numerical variables.



# Online Exams

Sri Lanka Institute of Information Technology

The collection and summarization of the socioeconomic and physical characteristics of the employees of a particular firm is an example of

Select one:

- Inferential statistics.
- Descriptive statistics.
- A parameter.
- A statistic.
- None of the above.

[Next page](#)

# Online Exams

Sri Lanka Institute of Information Technology

Consider a computer system with Poisson job-arrival stream at an average of 2 per minute. Determine the probability that in any one-minute interval there will be 0 job arrivals.

Select one:

- 0.28811
- 0.41136
- 0.17492
- 0.03655
- 0.13534

Next page

Following is **not** an example for a survey error.

Select one:

- Sampling error
- Measurement error
- Selection bias
- Non-response bias
-   None of the above

# Online Exams

Sri Lanka Institute of Information Technology

The statistics course consists of two (2) online quizzes. 22% of the class passed both tests and 41% of the class passed the first test. About what percent of those who passed the first test also passed the second test? (Round up the answer to the nearest integer)

Select one:

- 54%
- 20%
- 3%
- 24%
- None of the above

[Next page](#)

≡ Quiz navigation

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20				

[Finish attempt](#)

Time left 0:46:22



# Online Exams

Sri Lanka Institute of Information Technology

Question 3

Not yet answered

Marked out of  
1.00

Flag question

An example for a probability sampling method is,

Select one:

- Quota sampling method
- Convenience sampling method
- Stratified random sampling method
- Volunteer sampling method
- None of the above

# Online Exams

Sri Lanka Institute of Information Technology

The probability of a machine producing a defective part is 0.04. Consider a sample of 100 parts.

What is the rate of the occurrence in this distribution? 4

What is the probability of having exactly 5 defective parts? (Round your answer upto 5 decimal places)

0.1595

What is the variance of this distribution?

3.84

- Choose... ▾
- Choose 
- 4.32
- 0.15926
- 3.84
- 0.15629
- 4
- 0.37116

[Next page](#)



## Question 18

Not yet answered

Marked out of  
1.00

Flag question

X	-1	0	1	2
P(X=x)	0.3	0.2	a	0.3

Find:  $P(0 \leq X \leq 2)$  ?

Select one:

- 0.7
- 0.9
- 0.8
- 0.3
- 0.6

[Next page](#)

## Quiz navigation

1	2	3	4
8	9	10	11
15	16	17	18

[Finish attempt...](#)

Time left 0:01:33



14

Answered

out of

question

Which of the statements is false?

Select one:

- Variance is a measurement of dispersion.
- The units being used in the variance are not meaningful always.
- Variance is highly effected by the extreme values of the data set.
- Variance can be zero for some data sets.
- None of the above

Next pa



## Online Exams

Sri Lanka Institute of Information Technology

Question 1

Not yet answered

Marked out of  
1.00

Flag question

Find the probability of a 5 turning uppermost at least once in two tosses of a fair die.

Select one:

- 11/36
- 12/36
- 15/36
- 14/36
- None of the above

Next page



# Online Exams

Sri Lanka Institute of Information Technology

Question 5

Not yet answered

Marked out of  
1.00

Flag question

In a Car Sale an average of 3 out of every 5 customers would make a business. A random sample of 10 were selected. Find the probability that at least 9 people would make a business.

Select one:

- 0.2546
- 0.0146
- 0.0245
- 0.2145
- 0.0464



Next page



# Online Exams

Sri Lanka Institute of Information Technology

Question 13

You answered

Mark out of

Flag question

The mean and the median of the set given below

11, 26, 43, 15, 60, 18, 25

Select one:

- Mean = 28.29 and Median = 25
- Mean = 25 and Median = 28.5
- Mean = 27.29 and Median = 26.5
- Mean = 28.5 and Median = 27
- None of the above



# Online Exams

Sri Lanka Institute of Information Technology

Question 15

Not yet answered  
Marked out of  
1.00

Flag question

Patients arrive at a hospital accident and emergency department at a random rate of 6 per hour.

Find the probability that during 90 minutes period the number of patients arriving at the hospital accident and emergency department is .

At least 10

0.41259



Exactly 7?

Choose...

Choose...

0.08392

0.41259

0.55029

0.39370

0.11712

0.13768

Next page



A man sells electronic devices in his shop at an average rate of **2 per day**. What is the probability that the man sells at least 3 "electronic devices" in a **week (7days)** ?

Select one:

- 0.99991
- 0.65412
- 0.85456
- 0.21454
- 0.75442



**Question 1**

Not yet answered

Marked out of 16.00

 Flag question

A continuous random variable X has probability density function given by,

$$f_X(x) = \begin{cases} k(3 - x^2) & ; -1 \leq x \leq 1 \\ 0 & ; \text{otherwise} \end{cases}$$

1. Find k value.
2. Find  $P(X > 0.1)$ .  Choose...
3. Find  $V(X)$ .  Choose...
4. Find cumulative distribution function  Choose...
5. Find  $F(0.5)$ .  Choose...

When purifying drinking water you can use a so-called membrane filtration. In an experiment one wishes to examine the relationship between the pressure drop across a membrane and the flux (flow per area) through the membrane. We observe the following 10 related values of pressure (x) and flux (y).

Pressure (X)	1.02	2.08	2.89	4.01	5.32	5.83	7.26	7.96	9.11	9.99
Flux (Y)	1.15	0.85	1.56	1.72	4.32	5.07	5.00	5.31	6.17	7.04

### R Output for ANOVA table

#### Analysis of Variance Table

Response: Y

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
X	T	P	S	104.59	7.177e-06 ***
Residuals	U	Q	0.416		
Total	9	R			

---

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

- i. Find values marked P, Q, R, S, T and U in the ANOVA table.

P =  ▾

Q =  ▾

R =  ▾

S =  ▾

T =  ▾

U =  ▾

**Question 3**

Not yet answered

Marked out of 9.00

 Flag question

A consumer testing service rates a given DVD player as either very good or good. Let A denote the event that the rating is very good and B the event that the rating is good. You are given:  $\Pr(A) = 0.22$ ,  $\Pr(B) = 0.35$ .

Find,

1.  $\Pr(A^c)$  :

2.  $\Pr(A \cup B)$  :  Choose... ▾

3.  $\Pr(A \cap B)$  :  Choose... ▾

**Question 4**

Not yet answered

Marked out of 10.00

 Flag question

A sample of 42 batteries of a newly produced brand was subjected for testing their lifetimes before it is advertised for marketing. The lifetimes in hours which each survived is given below.

112 105 123 137 157 134 143 155 137 98 141 104 108 99 147 97 131 153 144 94 139 115 152 115 137 115 110 100 112 95 98 102 105  
130 90 99 96 110 117 114 120 140

For this data,  $\bar{x} = 119.76$  and  $S = 6.5123$ .

1. Construct 95% confidence interval for the true mean lifetime of batteries.

Lower Limit Equation:

Upper Limit Equation:

Critical value:

Lower Limit value:

Upper Limit value:

**Question 5**

Not yet answered

Marked out of 9.00

 Flag question

Suppose that in late summer, the Fremantle Surf Life Saving club makes an average of seven surf rescues per day. Without using any approximation, find the probability that,

1. More than two rescues are made on a particular day.

 Choose... ▾

2. Three to five surf rescues are made on a particular day.

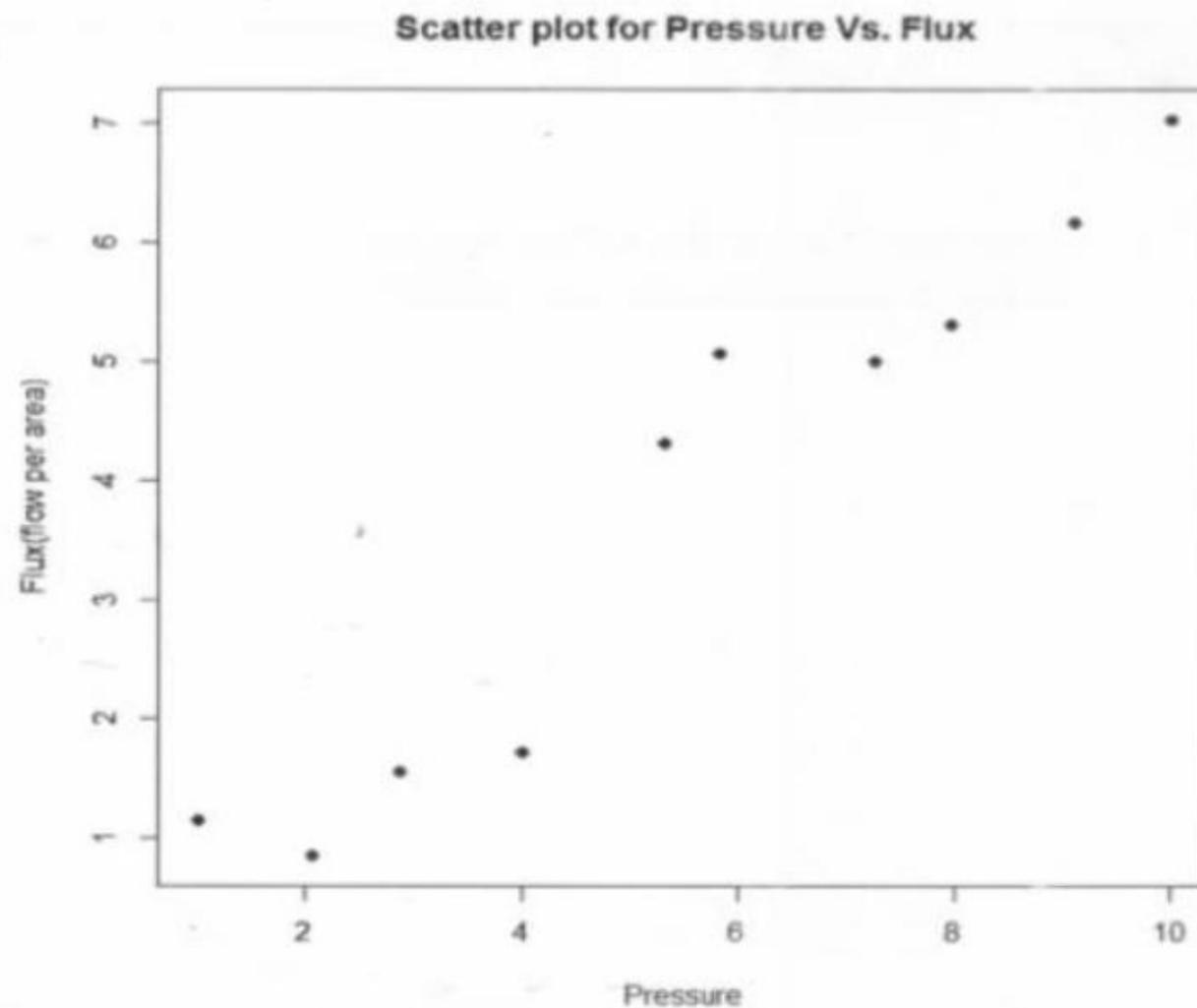
 Choose... ▾

3. Using suitable approximation, find the probability that fewer than four rescues are made on a particular day.

 Choose... ▾

When purifying drinking water you can use a so-called membrane filtration. In an experiment one wishes to examine the relationship between the pressure drop across a membrane and the flux (flow per area) through the membrane. We observe the following 10 related values of pressure (x) and flux (y).

Pressure (X)	1.02	2.08	2.89	4.01	5.32	5.83	7.26	7.96	9.11	9.99
Flux (Y)	1.15	0.85	1.56	1.72	4.32	5.07	5.00	5.31	6.17	7.04



## R Output

### Coefficients:

	(Intercept)	Pressure
	-0.1886	0.7225

### Analysis of Variance Table

Response: Y

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
X	T	P	S	104.59	7.177e-06 ***
Residuals	U	Q	0.416		
Total	9	R			
---					

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 ':' 0.1 '' 1

1. State the estimated Regression equation.

Estimated Flux = -0.1886 + 0.7225 (Pressure) ▾

2. Does the slope of the Regression line is significant ( $\beta \neq 0$ )?

Yes. Regression line is significant. ▾

3. Find the estimated flux when the pressure takes the value 5 units.

3.4239 flow per area ▾

4. Provide a meaningful conclusion from the above analysis.

There is a strong positive linear relationship in between pressure and flux. ▾

**Question 7**

Answer saved

Marked out of 3.00

 Flag question

Suppose that  $P(A) = 0.4$  and  $P(B) = 0.3$  where, A and B are independent. Find  $P(A \text{ and } B)$ .

Answer: -0.5

**Question 8**

Not yet answered

Marked out of 3.00

 Flag question

When purifying drinking water you can use a so-called membrane filtration. In an experiment one wishes to examine the relationship between the pressure drop across a membrane and the flux (flow per area) through the membrane. We observe the following 10 related values of pressure (x) and flux (y).

Pressure (X)	1.02	2.08	2.89	4.01	5.32	5.83	7.26	7.96	9.11	9.99
Flux (Y)	1.15	0.85	1.56	1.72	4.32	5.07	5.00	5.31	6.17	7.04

Find the Pearson's correlation coefficient between the flux and the pressure. (Keep your answer in four decimal places)

Answer:

A large corporation is interested in determining whether a relationship exists between the commuting time of its employees and the level of stress-related problems observed on the job. A study of 116 workers reveals the following:

Commuting Time	Stress Level			
	High	Moderate	Low	Total
Under 15 min	9	5	18	32
15 - 45	17	8	28	53
Over 45 min	18	6	7	31
Total	44	19	53	116

At the 0.05 level of significance, is there evidence of a significant relationship between commuting time and stress level?

1. Hypothesis:

Choose...

2. Distribution of test statistic:

Choose... ▾

3. Significance level:

Choose... ▾

4. Critical value:

Choose... ▾

5. Rejection criteria:

Choose... ▾

6. Test value:

Choose... ▾

7. Conclusion (In Scientific term):

Choose... ▾

8. Conclusion (In terms of question):

Choose...

The quality-control manager at a light bulb factory state that the mean life of a large shipment of light bulbs is equal to 375 hours. The population standard deviation is 100 hours. A random sample of 64 light bulbs indicates a sample mean life of 350 hours. At the 0.05 level of significance, is there evidence that the mean life is increased from 375 hours?

1. Hypothesis:

2. Test Statistic (Under  $H_0$ ):

3. Distribution of test statistic:

4. Critical value:

5. Rejection criteria:

6. Test value:

7. Conclusion (In Scientific term):

8. Conclusion (In terms of question):

Home My courses Probability and Statistics - IT2110

2019 Jun-Dec

Not available

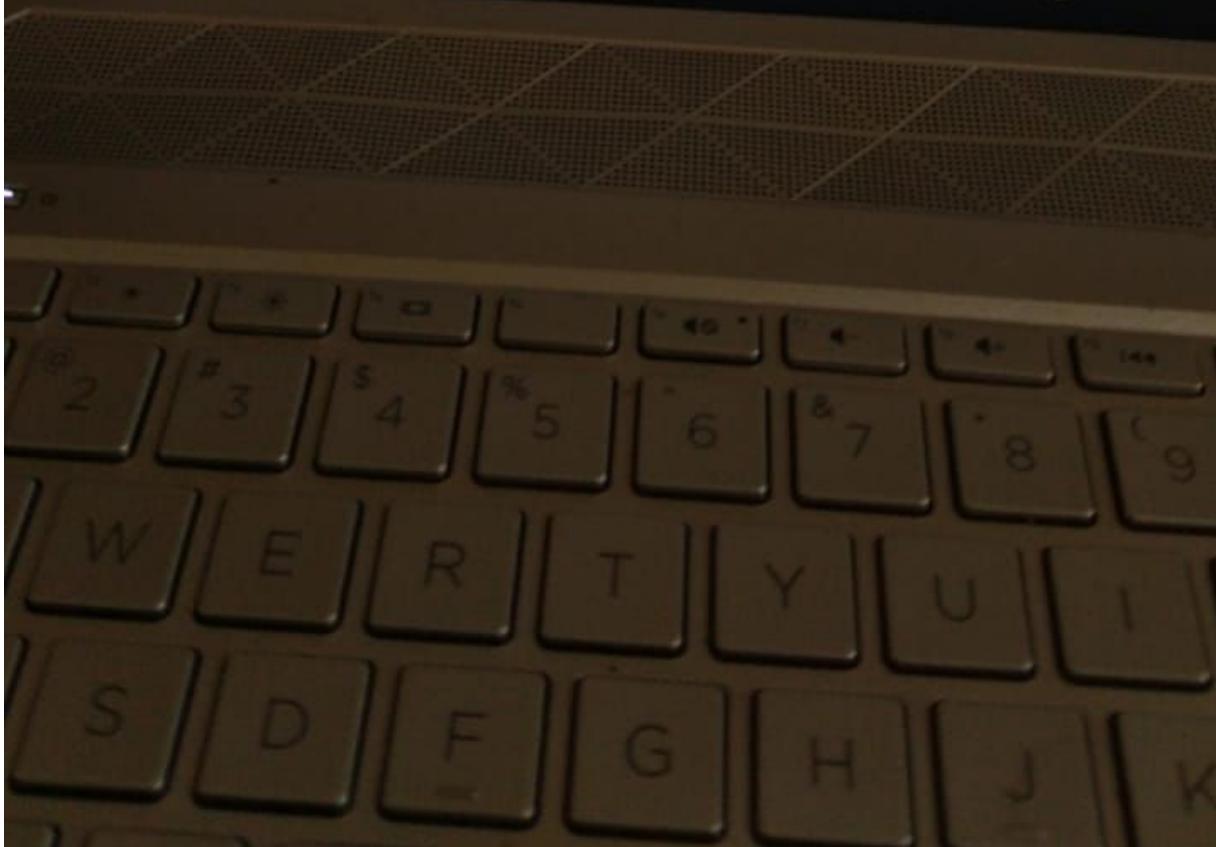
2020 February - May

Not available

2021 Feb - June

Not available

2021 July - December



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 NetExam  
Sri Lanka Institute of Information Technology

on 1  
answered  
d out of  
g question

Suppose in a town three candidates are running for the mayor's seat. To predict the winning candidate, a newspaper selects 25 registered voters randomly and the following info about each respondents' choice.  
CCABCCBCBABCABAACCABABC  
Choose the correct statement.

Select one:

- Population size is 25
- Sample size is not given
- Population is all registered voters in the town at the time of the study.
- Cannot identify a variable from the description
- None of the above

Next



A screenshot of a web browser window. The address bar shows the URL [netexam.sliit.lk/course/view.php?id=386](http://netexam.sliit.lk/course/view.php?id=386). The page title is "Course: Exam Navigator, Topic: Data Structures and Algorithms". The browser has several tabs open, including "Course: Data Structures and Alg...", "Insert Data Into SQ...", "Fiverr / pasikavi / A...", "Google පරිභාසාධක", "Dashboard", "GitHub - Dinushka9...", "My Profile | Design...", "repl.it - Classroom", and "repl.it - Dashboard". The user's name "it19123332 Kavishka P.K.P it19123332" and profile picture are visible in the top right. The main content area shows a navigation menu with "Announcements" selected, followed by "Dashboard", "Examinations", "Lockdown Browser", and "Practice Test". Below the menu is a breadcrumb trail: Home > My courses > Data Structures and Algorithms - IT2070.

The screenshot shows a detailed view of the course navigation menu. On the left, there is a sidebar with a purple header containing the text "Announcements". To the right of the sidebar is a large yellow background area. On the far right, there is a "Navigation" sidebar with a purple header. This sidebar contains a tree-like navigation structure:

- Dashboard
- Site home
- Site pages
- My courses
  - Data Structures and Algorithms - IT2070
    - Participants
    - Competencies
    - Grades
    - General
  - Operating Systems and System Administration - IT2060
  - Probability and Statistics - IT2110
  - Lockdown Browser



Question 1

Not yet answered

Marked out of  
3.00 Flag question

Assuming that the weekly demand for a video recorder is a poisson variable with mean 3, find the probability that the shop sells

at least 3 in a week.

at most 7 in a week.

more than 20 in a month.

Choose... ▾

- Choose...
- 0.57681
- 0.9881
- 0.03351
- 0.08392
- 0.0116

[Next page](#)

Ques  
tion 1

Not answered

Marked out of

Flag question

The number of industrial injuries per working week in a particular factory is known to follow a Poisson distribution with mean 0.5. Find the probability that,

in particular week there will be less than 2 accidents.

Choose... ▾

in particular week there will be more than 5 accidents.

Choose... ▾

in a 3 week period there will be no accidents.

Choose...  
0.54476  
0.9098  
0.77687  
0.22313  
0.00001

Next page

$E(X)$  and  $E(X^2)$  of a discrete random variable are -1.4 & 2 respectively. What is  $V[X]$ ?

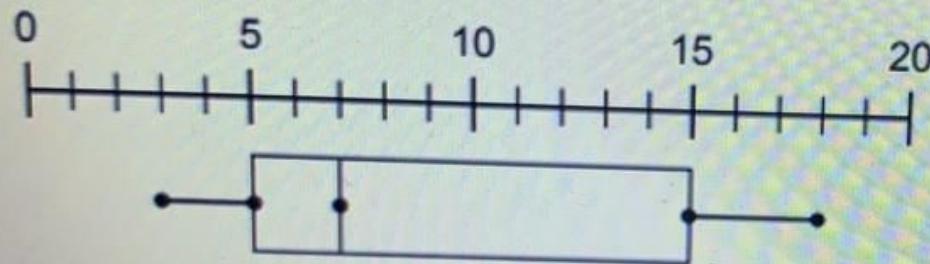
Select one:

- 0.4
- 0.4
- 1.4
- 0.04
- None of the above

1  
Answered  
out of  
question

According to the box-and-whisker plot, what is the maximum number of hot dogs eaten in the hot dog eating contest?

Hot Dogs Eaten by Contestants



Select one:

- 15
- 3
- 7
- 18
- 20

The statistic NOT required for a box plot is.

Select one:

- Mean
- 1st quartile
- Median
- 3rd quartile
- None of the above

Next p



# NetExam

Sri Lanka Institute of Information Technology

**Question 3**

Not yet answered

Marked out of  
3.00

Flag question

Consider a computer system with Poisson job-arrival stream at an average of 2 per minute. Determine the probability that in any one-minute interval there will be

0 jobs

Choose... ▾

- Choose...
- 0.32332
- 0.27067
- 0.13534
- 0.59399
- 0.86466

exactly 2 jobs

at least 3 arrivals

Next page



wered  
t of  
estion

A machine produces parts that are either good (90%), slightly defective (2%), or obviously defective (8%). Produced parts get passed through an automatic inspection machine, which is able to detect any part that is obviously defective and discard it. The machine passes the part if it is not obviously defective. If it makes through the inspection machine and get shipped, what is the probability that it is a good quality part?

Select one:

- 0.9
- 0.978
- 0.742
- 0.685
- None of the above

# NetExam

Sri Lanka Institute of Information Technology

Let  $E$  be an event and  $E'$  is its complement. If  $P(E) = 1/3$ , what is  $P(E')$ ?

Select one:

- $P(E') = P(E) = 1/3$
- $P(E') = P(E) - 1 = -2/3$
- $P(E') = 2 * P(E) = 2/3$
- $P(E') = 1 - P(E) = 2/3$
- None of the above

Which of the following would fit the definition of "statistical independence" of events A and B?

Select one:

- $P(A \mid B) = P(A) + P(B)$
- $P(A \mid B) = P(A \text{ and } B)/P(B)$
- $P(A \mid B) = P(B)$
- $P(A \text{ and } B) = P(A)$
- None of the above



Next page

 NetExam  
Sri Lanka Institute of Information Technology

What are the outliers for the given data set below.  
7, 23, 26, 27, 28, 30, 31, 34, 34

Select one:

- 1,3
- 31, 33
- 30, 31
- 1,33
- No outliers

Next >

Find  $E(X)$  for the random variable X with table:

values of X: 1      3      5

$P(X=x)$ : 1/6      1/6      2/3

Select one:

- 4
- 1
- 10
- 8
- None of the above

The probability of a machine producing a defective part is 0.04.

What is the probability of having exactly 5 defective parts, if it is selected from a sample of 100? (Round your answer upto 5 decimal places)

What is the rate of the occurrence in this distribution?

What is the variance of this distribution?

- Choose... ▾
- Choose...
- 0.36926
- 0.15629
- 0.47116
- 3.84
- 4

Next page



# NetExam

Sri Lanka Institute of Information Technology

**Question 1**

Not yet answered

Marked out of  
1.00

Flag question

Let A and B be events with  $P(A^C) = 1/2$ ,  $P(A \cup B) = 3/4$ ,  $P(A|B)=1/3$  and  $P(B^C) = 5/8$  where  $A^C$  is the complement of A. Then  $P(A^C \cap B^C)$  is:

Select one:

- 1/8
- 3/8
- 6/8
- 7/8
- None of the above

[Next page](#)

To be an outlier for the following data set, data points should lie between,

18      44      47      55      61      62      78      79      83      145

Hint: Outlier is defined as a value  $x$ , holding the following conditions.

$$x > Q3 + 1.5 \times (\text{Inter Quartile Range})$$

$$x < Q1 - 1.5 \times (\text{Inter Quartile Range})$$

Lower bound

-4.375



Upper bound

130.625



Next page



A coin is tossed and a single 6-sided die is rolled. What is the probability of landing on the head side of the coin and rolling a 3 on the die?

Select one:

- 1/3
- 1/6
- 1/2
- 1/12
- None of the above





# NetExam

Sri Lanka Institute of Information Technology

**Question 1**

Not yet answered

Marked out of  
3.00

Flag question

Assuming that the weekly demand for a video recorder is a poisson variable with mean 3, find the probability that the shop sells

at least 3 in a week.

at most 7 in a week.

more than 20 in a month.

Choose... A dropdown menu is open, showing the word "Choose..." followed by a downward-pointing arrow icon.

Choose...

0.57681

0.08392

0.0116

0.9881

0.03351

Next page



# NetExam

Sri Lanka Institute of Information Technology

5

Answered

out of

question

The probability that a patient recovers from a heart operation is 0.9. What is the probability that at least 2 of the next three patients who have this operation recover? (Don't use any approximation)

Select one:

- 0.8960
- 0.9720
- 0.7890
- 0.5960
- None of the above

Next page



# NetExam

Sri Lanka Institute of Information Technology

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estion

Which of the following is **not** required for a binomial distribution?

Select one:

- Independent trials
- Constant probability of success
- At least fifty observations
- Fixed trials
- Only two outcomes



# NetExam

Sri Lanka Institute of Information Technology

Answered

of

question

Which of the following can be a probability function?

Select one:

- P(X)=1/2 for x=1,2,3
- P(X)=x/5 for x=1,2,3,4
- P(X)=x/2 for x=0,1,2
- P(X)=1/5 for x=0,2,3
- None of the above



NetExam

Sri Lanka Institute of Information Technology

Determine the value of k so that the function  $P(X=x) = kx$  for  $x=1,2,3,4,5,6$  can serve as a probability distribution for a discrete random variable X.

Select one:

- $3/21$
- $5/21$
- $1/6$
- $2/21$
- None of the above



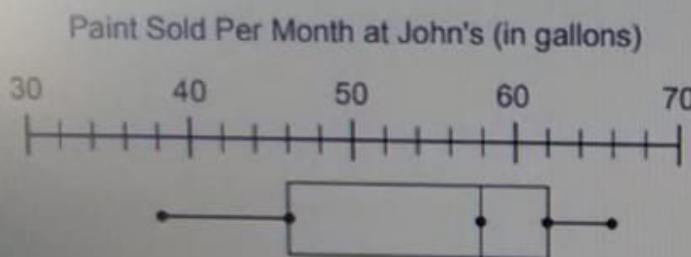
Question 4

Not yet answered

Marked out of  
1.00

Flag question

According to the box-and-whisker plot, what is the third quartile of gallons of paint sold at John's Hardware Store in a month?



Select one:

- 66
- 61
- 60
- 62
- 58

**Question 3**

Not yet answered

Marked out of  
1.00[Flag question](#)

A medical treatment has a success rate of 0.8. Two patients will be treated with this treatment. Assuming the results are independent for the two patients, what is the probability that neither one of them will be successfully cured?

Select one:

- 0.5
- 0.36
- 0.2
- 0.04
- None of the above

[Next page](#)



in 6

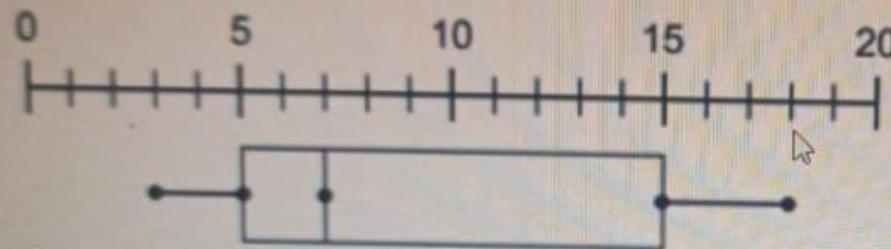
answered

out of

g question

According to the box-and-whisker plot, what is the maximum number of hot dogs eaten in the hot dog eating contest?

**Hot Dogs Eaten by Contestants**



Select one:

- 20
- 18
- 7
- 3
- 15

A and B are two events.  $P(A \text{ and } B)$ ' is equal to;

Select one:

- $P(A' \text{ or } B)$
- $P(A \text{ and } B')$
- $P(A' \text{ and } B')$
- $P(A' \text{ or } B')$
- None of the above.

**Question 4**

Not yet answered

Marked out of  
1.00

Flag question

The best sample is one that is,

Select one:

- A systematic sample
- Representative of the population
- Convenient
- judgmentally selected
- Non-random sample





Question 1

yet answered

Marked out of

1

Flag question

The below transformation is applied to a data set

$$Y = 3X + 4$$

Where X is old data and Y is New data. If the variance of the old

Select one:

- 49
- 5
- 9
- 45
- None of the above



# NetExamination

Sri Lanka Institute of Information Technology

**Question 6**

Not yet answered

Marked out of  
2.00

Flag question

When Joe bowls, he can get a strike (knock down all of the pins) 60% of the time. Assuming that all trials are independent and identical what is the probability for him to bowl zero strikes out of four tries?

Select one:

- 512/10000
- 256/1000
- 256/10000
- 128/10000
- None of the above

[Next page](#)

The class midpoint is

Select one:

- The center of the class
- The lower limit of the class
- The upper limit of the class
- The width of the class
- The number of observations in a class

The below transformation is applied to a data set.

$Y = 2X + 3$ , where X is the old data and Y is the new data.

If the variance of the first data set is 7 then what is the variance of the new data set.

Select one:

- 24
- 28
- 14
- 7
- None of the above

# NetExam

Sri Lanka Institute of Information Technology

This stem and leaf plot shows the number of cookies that Tia's Girl Scout troop sold each week. How many weeks did they sell cookies?

Stem	Leaf
5	114
6	456
7	22
8	3677

Select one:

- 4
- 87
- 12
- 51
- The Stem and leaf plot do not say.

Next page

Time left		QUESTIONS	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1	2																			

FEEDBACK

# NetExam

Sri Lanka Institute of Information Technology

What are the outliers for the given data set below. It found that  $Q1 = 24.5$ ,  $Q2 = 28$  and  $Q3 = 32.5$  for the data set.  
7, 23, 26, 27, 28, 30, 31, 34, 34

Select one:

- 23
- 7
- 34
- 26
- No outliers

Nex



# NetExam

Sri Lanka Institute of Information Technology

A study is under way in to determine the adult height of American pine trees. Specifically, the study is attempting to determine what factors aid a tree in reaching heights greater than 60 feet tall. It is estimated that the forest contains 25,000 adult American pines. The study involves collecting heights from 250 randomly selected adult American pine trees and analyzing the results. Identify the sample in the study.

Select one:

- The 250 randomly selected adult American pine trees.
- The 25,000 adult American pine trees in the forest.
- All the adult American pine trees taller than 60 feet.
- All American pine trees, of any age, in the forest.
- None of the above.

[Next page](#)



The probability that a patient recovers from a heart operation is 0.9. What is the probability that at least 2 of the next three patients who have this operation recover? (Don't use any approximation)

Select one:

- 0.8960
- 0.9720
- 0.7890
- 0.5960
- None of the above



[Next page](#)

≡ Quiz navigation

Finish attempt ...

Time left 0:49:01

QUESTIONS

1	2	3	4	5
9	10	11	12	13
17	18	19	20	
21				

FEEDBACK

21



Answered  
of  
question

The type of sampling in which each member of the population selected for the sample is returned to the population before the next member is selected is called,

Select one:

- Sampling without replacement
- Sampling with replacement
- Simple random sampling
- Systematic sampling
- None of the above

Next page



NetExam

Sri Lanka Institute of Information Technology

**Question 2**

Not yet answered

Marked out of  
2.00

Flag question

Which of the following is **not** required for a binomial distribution?

Select one:

- Independent trials
- At least fifty observations
- Fixed trials
- Only two outcomes
- Constant probability of success

Next p



on 7

et answered

d out of

g question

This stem and leaf plot shows the scores of students for a test given out of 100. How many students scored more than 75 marks?

Stem	Leaf
5	2, 6, 6, 8
6	0, 1, 4, 9
7	1, 1, 2, 4, 6, 6, 7
8	0, 0, 3, 4, 5, 5, 7, 8, 9
9	0, 1, 1, 2, 6, 9

Select one:

- 12
- 2
- 6
- 18
- 8

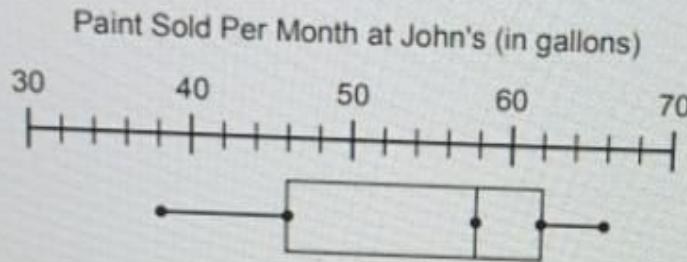
**Question 4**

Not yet answered

Marked out of  
1.00

 Flag question

According to the box-and-whisker plot, what is the third quartile of gallons of paint sold at John's Hardware Store in a month?



Select one:

- 60
- 61
- 66
- 62
- 58

What are the outliers for the given data set below.

7, 23, 26, 27, 28, 30, 31, 34, 34

Select one:

- 1,3
- 31, 33
- 30, 31
- 1, 33
- No outliers

# NetExam

Sri Lanka Institute of Information Technology

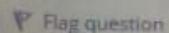
A numerical value used as a summary measure for a sample, such as sample mean, is known as a.

Select one:

- Population parameter
- Sample parameter
- Sample statistic
- Population mean
- None of the above

**Question 10**

Not yet answered

Marked out of  
1.00

Suppose in a town three candidates are running for the mayor's seat. To predict the winning candidate, a newspaper selects 25 registered voters randomly and the following info about each respondents' choice.

CC A B C C B C B B A B C A B A A C C A C C A B A B C C

Choose the correct statement.

Select one:

- Population size is 25
- Sample size is not given
- Population is all registered voters in the town at the time of the study.
- Cannot identify a variable from the description
- None of the above

 Quiz navigation

Finish attempt ...

Time left 0:34:39

## QUESTIONS

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	

## FEEDBACK

Next page

21

**Question 9**

Not yet answered

Marked out of  
1.00

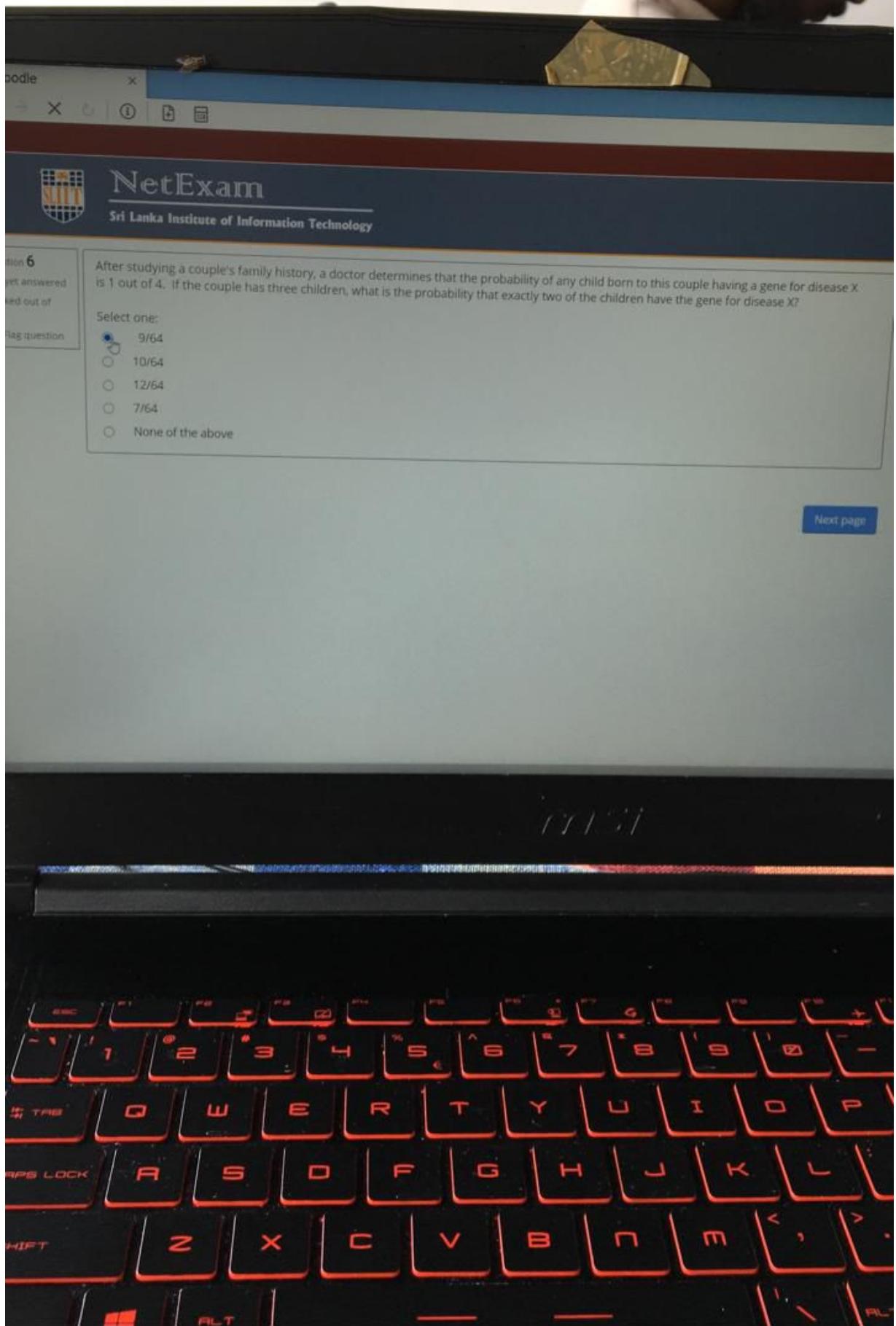
Flag question

The tallest bar in a histogram represents?

Select one:

- The class with the highest cumulative frequency
- The class with the lowest relative frequency
- The class with the highest frequency
- The class with the lowest frequency
- None of the above

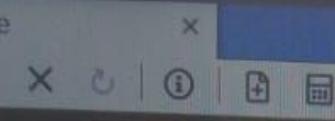




A garment factory produces large lots of a certain type of garments. What is the mean of the number of defective units found in a sample of 10 units if the lot is 2% defective?

Select one:

- 5
- 2
- 0.2
- 0.98
- None of the above



When each member of a population has an equally likely chance of being selected, this is called:

Select one:

- A nonrandom sampling method.
- A quota sample.
- A judgement sampling
- A simple random sample.
- None of the above.



Let  $E$  be an event and  $E'$  is its complement. If  $P(E) = 1/3$ , what is  $P(E')$ ?

Select one:

- $P(E') = P(E) = 1/3$
- $P(E') = P(E) - 1 = -2/3$
- $P(E') = 2 * P(E) = 2/3$
- $P(E') = 1 - P(E) = 2/3$
- None of the above



Roll a fair die twice. Let  $X$  be the random variable that gives the absolute value of the differences between the two numbers.

$$X = | \text{ value of roll 1 } - \text{ value of roll 2 } |$$

Then what is the  $P(X=1)$ ?

Select one:

- 1/6
- 10/36
- 8/36
- 9/36
- 2/36



# NetExam

Sri Lanka Institute of Information Technology

7

answered

out of

question

In an experiment of rolling two dice, the first die shows a ONE and the other die rolls under the table and you cannot see it. Now, what is the probability that both die show ONE?

Select one:

- 1/3
- 1/6
- 1/36
- 9/36
- None of the above

Submit answer



The class midpoint is

Select one:

- The center of the class
- The width of the class
- The upper limit of the class
- The number of observations in a class
- The lower limit of the class

Moodle

NetExam

Sri Lanka Institute of Information Technology

Question 4  
Not yet answered  
Marked out of 1.00  
Flag question

Most analysts focus on the cost of tuition as the way to measure the cost of a college education. But incidentals, such as textbook costs, are rarely considered. A researcher at Drummond University wishes to estimate the textbook costs of first-year students at Drummond. To do so, she monitored the textbook cost of 250 first-year students and found that their average textbook cost was \$300 per semester. Identify the sample in the study.

Select one:

- All Drummond University students.
- All college students.
- All first-year Drummond University students.
- All first-year college students.
- None of the above.

Next page

NVIDIA GEFORCE GTX

A and B are two events.  $P(A \text{ and } B')$  is equal to:

Select one:

- $P(A' \text{ or } B)$
- $P(A \text{ and } B')$
- $P(A' \text{ and } B')$
- $P(A' \text{ or } B')$
- None of the above.



≡ Quiz navigation

Finish attempt ...

Time left 1:02:35

QUESTIONS

1	2	3	4
9	10	11	12
17	18	19	20

FEEDBACK

21

Next page



# NetExam

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**Question 2**

Not yet answered

Marked out of  
1.00

Flag question

Which of the following is not a form of non-probability sampling?

Select one:

- Quota sampling.
- Convenience sampling.
- Cluster sampling.
- Purposive/Judgement sampling.
- They are all forms of non-probability sampling.

**Question 1**

Not yet answered

Marked out of  
1.00

 Flag question

The conditional probability of  $x$  given  $y$  is:

Select one:

- the probability that  $x$  and  $y$  occur jointly
- the probability that  $y$  occurs if  $x$  has already occurred
- the probability that  $x$  occurs if  $y$  has already occurred
- the marginal probability of  $x$  minus the marginal probability of  $y$
- None of the above

[Next page](#)



Sampling in which a sampling unit can be repeated more than once is called,

Select one:

- Sampling without replacement
- Simple sampling
- Sampling with replacement
- Repeated sampling
- None of the above



Consider the following probability function

$P(X=x)=cx^2$ ;  $x=3,4,5$ , where c is positive constant. Find c.

Select one:

- 0.2
- 0.2
- 0.02
- 2
- None of the above

Your neighbor has 2 children. You learn that he has a son, Joe. What is the probability that Joe's sibling is a brother? (Assume that boys and girls are equally likely).

Select one:

- 1/4
- 1/5
- 1/3
- 1/2
- None of the above



X	-10	-20	30
P(X)	1/5	3/10	1/2

Let  $X$  be a random variable with the probability distribution given above. The mean of  $g(X) = 2X$  is:

Select one:

- 1
- 7
- 14
- 1
- None of the above

Consider the following discrete probability distribution for the random variable  $X$ .

$X$	0	1	2
$P(X=x)$	$a$	$b$	0.4

If the mean of  $X$  is 1 then,

Select one:

- $a=0.3$  and  $b=0.1$
- $a=0.2$  and  $b=0.4$
- $a=0.4$  and  $b=0.2$
- $a=0.2$  and  $b=0.2$
- $a=0.1$  and  $b=0.5$



## Question 3

Not yet answered

Marked out of 1.00

A small icon representing a flagged document, used for marking questions.

A medical treatment has a success rate of 0.8. Two patients will be treated with this treatment. What is the probability that neither one of them will be successfully treated?

Select one:

- 0.5
- 0.36
- 0.2
- 0.04
- None of the above



If the number of arrivals in a queue is 10 per hour on average, determine the probability that, in any hour there will be

0 arrivals

Choose... 

6 arrivals

Choose... 

more than 6 arrivals

Choose... 

≡ Quiz n...

Finish attempt

Time left 0:27:5

QUESTIONS

1 2 3

9 10 11

17 18 19

FEEDBACK

21

Next page



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$\mu$  is an example of a

Select one:

- population parameter
- sample statistic
- population variance
- sample variance
- None of the above



Question 5

Not yet answered

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3.00

Flag question

In a district, the probability of having a power cut in a house will be 0.003.

What is the probability that 10 houses having the power cut, out of 1000 houses in this district? (Give your answer up to 5 decimal places)

What is the variance of this distribution?

What is the rate of the occurrence in this distribution?

Choose... ▾

- Choose...
- 0.20018
- 0.00081
- 4.5
- 3
- 0.61110

Next page

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Finish a

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21

**Question 12**

Not yet answered

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Flag question

Consider the following discrete probability distribution for the random variable  $X$ .

$X$	1	2	3	4	5
$P(X=x)$	$p$	$2p$	$3p$	$4p$	$5p$

The mean of  $X$  is.

Select one:

- 2
- 3
- 3.5
- 3.67
- 5.21

[Next page](#)

Which of the following is **not** required for a binomial distribution?

Select one:

- Fixed trials
- Constant probability of success
- Independent trials
- Only two outcomes
- At least fifty observations



Question 4

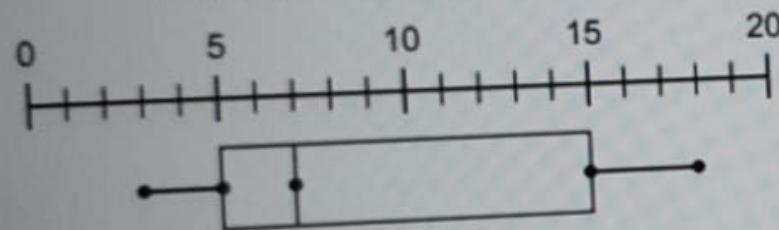
Not yet answered

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1.00

Flag question

According to the box-and-whisker plot, what is the maximum number of hot dogs eaten in the hot dog eating contest?

Hot Dogs Eaten by Contestants



Select one:

- 18
- 7
- 3
- 20
- 15

[Next page](#)



**Question 1**

Not yet answered

Marked out of  
2.00

Flag question

Consider the following probability

$$P(X=x) = (1/12) * x, \text{ for } x=3,4,5$$

Find the expected value

Select one:

- 3
- 0.3
- 4.28
- 2.5
- None of the above

[Next page](#)

In a district, the probability of having a power cut in a house will be 0.0015.

What is the probability that at most 12 houses having the power cut, out of 3000 houses in the district? (Give your answer to 5 decimal places)

0.99919

What is the variance of this distribution?

4.5

What is the rate of the occurrence in this distribution?

0.00240



# NetExam

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on 4

answered

1 out of

3 question

$P(A)=3/8, P(B)=5/8,$  and  $P(A \cup B)=3/4,$  Find  $P(A \cap B)$

Select one:

- 1/5
- 1/4
- 1/8
- 3/8
- None of the above



A numerical value used as a summary measure for a sample, such as sample mean, is known as a,

Select one:

- Population parameter
- Sample parameter
- Sample statistic
- Population mean
- None of the above

iddle X

→ X (i) (b) (c) (d) (e)

 NetExam  
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Question 2 yet answered

Marked out of 0 Flag question

This stem and leaf plot shows the number of cookies that Tia's Girl Scout troop sold each week. How many weeks did they sell 12 cookies?

Stem	Leaf
5	1 1 4
6	4 5 6
7	2 2
8	3 6 7 7

Select one:

4

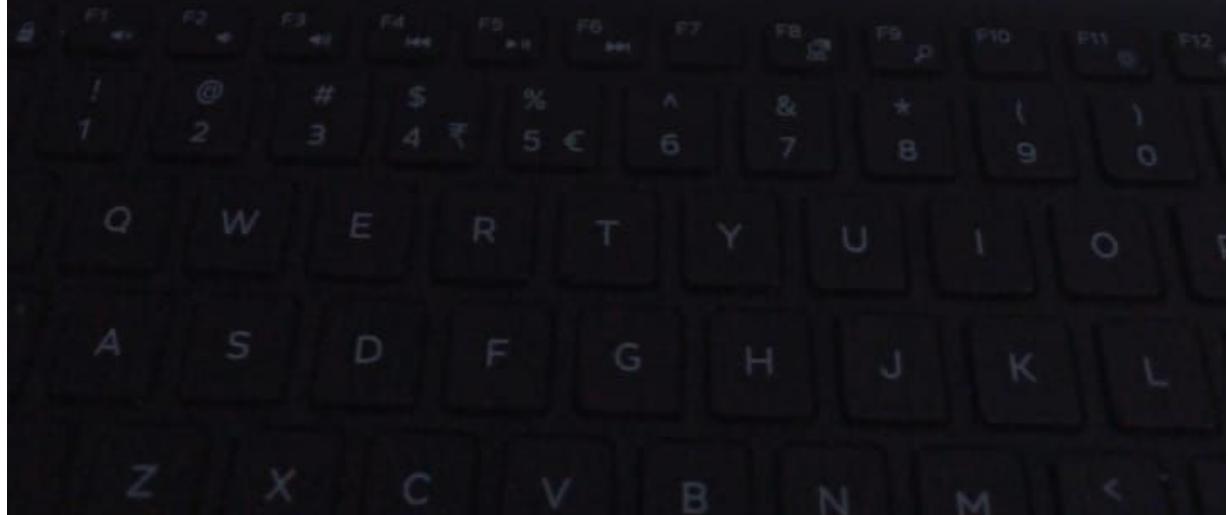
87

12

51

The Stem and leaf plot do not say.

DELL



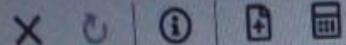


This stem and leaf plot shows the scores of students for a test given out of 100. How many students scored more than 75 marks?

Stem	Leaf
5	2, 6, 6, 8
6	0, 1, 4, 9
7	1, 1, 2, 4, 6, 6, 7
8	0, 0, 3, 4, 5, 5, 7, 8, 9
9	0, 1, 1, 2, 6, 9

Select one:

- 6
- 18
- 8
- 12
- 2



# NetExam

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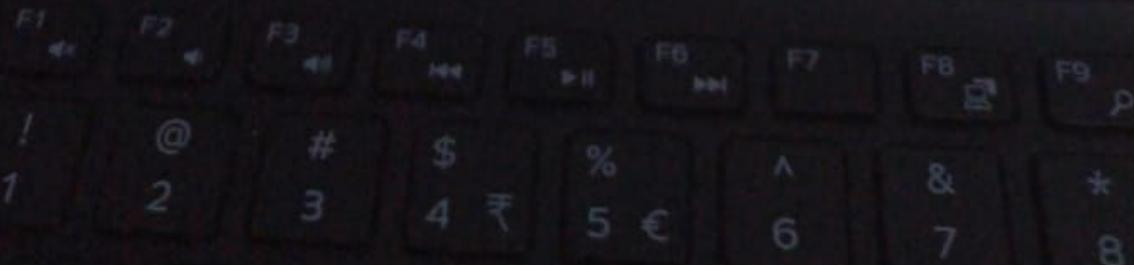
3  
answered  
out of  
question

Which of the following is a discrete quantitative variable?

Select one:

- The Dow Jones Industrial (stock market) average .
- The volume of water released from a dam.
- The distance you drove yesterday.
- The number of employees of an insurance company
- None of the above.

DELL





2  
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Which of the following is **not** required for a binomial distribution?

Select one:

- Constant probability of success
- At least fifty observations
- Fixed trials
- Only two outcomes
- Independent trials



# NetExam

Sri Lanka Institute of Information Technology

Find  $E(X)$  for the random variable  $X$  with table:

values of  $X$ : 1      3      5

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

Select one:

- 4
- 1
- 10
- 8
- None of the above



# NetExam

Sri Lanka Institute of Information Technology

Consider the following probability

$$P(X=x) = (1/12) * x, \text{ for } x=3,4,5$$

Find the expected value

Select one:

- 3
- 0.3
- 4.28
- 2.5
- None of the above

Submit



# NetExam

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Which of the following is a discrete quantitative variable?.

Select one:

- The Dow Jones Industrial (stock market) average .
- The volume of water released from a dam.
- The distance you drove yesterday.
- The number of employees of an insurance company
- None of the above.



# NetExam

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The class midpoint is

Select one:

- The width of the class
- The upper limit of the class
- The number of observations in a class
- The center of the class
- The lower limit of the class



Next page



# NetExam

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Question 7

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Flag question

If we took the 500 people attending a school in Colombo, divided them by gender, and then took a random sample of the males and a random sampling of the females, the variable on which we would divide the population is called the;

Select one:

- Independent variable.
- Dependent variable.
- Stratification variable.
- Sampling variable.
- None of the above.

≡ Quiz navigation

Finish attempt ...

Time left 0:55:52

QUESTIONS

1	2	3	4
9	10	11	12
17	18	19	20

Next page

FEEDBACK

21



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Flag question

X	-10	-20	30
P(X)	1/5	3/10	1/2

Let  $X$  be a random variable with the probability distribution given above. The mean of  $g(X) = 2X$  is:

Select one:

- 1
- 7
- 14
- 1
- None of the above

Suppose 2% of the bolts produced by a factory are defective. In a shipment of 3600 bolts from the factory, find the mean number of defective bolts and the standard deviation without using any approximation.

Select one:

- Mean = 72, standard deviation = 70.56
- Mean = 72, standard deviation = 8.4
- Mean = 720, standard deviation = 24
- Mean = 720, standard deviation = 576
- None of the above



Which of the following sampling techniques is an equal probability selection method (EPSEM) in which every individual in the population has an equal chance of being selected?

Select one:

- Simple random sampling.
- Systematic sampling.
- Proportional stratified sampling.
- Cluster sampling.
- All of the above are EPSEM.

[Next page](#)

Suppose in a town three candidates are running for the mayor's seat. To predict the winning candidate, 100 voters were sampled randomly and the following info about each respondents' choice.

CC A B C C B C B B A B C A B A A C C A B A B C C

Choose the correct statement.

Select one:

- Population size is 25
- Sample size is not given
- Population is all registered voters in the town at the time of the study.
- Cannot identify a variable from the description
- None of the above

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NetExam

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Let  $A^C$  and  $B$  be events with  $P(A^C) = 1/2$ ,  $P(A \cup B) = 3/4$ ,  $P(A|B) = 1/3$  and  $P(B^C) = 5/8$  where  $A^C$  is the complement of  $A$ . Then  $P(A \cap B^C)$  is:

Select one:

1/8

3/8

6/8

7/8

None of the above

Next p

← →

F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16

# \$ % ^ & \* ( ) \_

3 4 5 6 7 8 9 0



# NetExam

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1

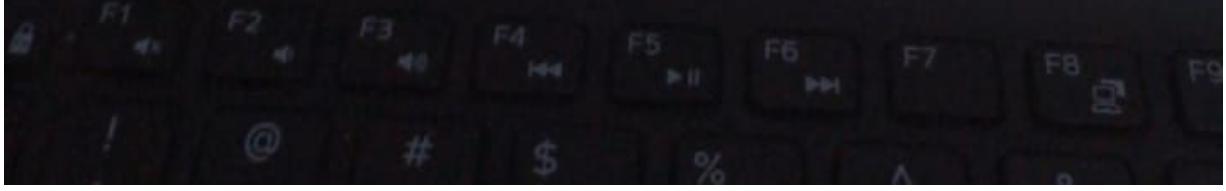
answered  
out of

question

When arranging data into classes it is suggested that you have

Select one:

- Between 5 and 10 classes
- Always only 5 classes
- More than 20 classes
- Less than 5 classes
- Between 20 and 40 classes





The class midpoint is

Select one:

- The center of the class
- The width of the class
- The upper limit of the class
- The number of observations in a class
- The lower limit of the class



# NetExam

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A number calculated with complete population data and quantifies a characteristic of the population is called which of the following?

Select one:

- A datum
- A parameter
- A statistic
- A population
- None of the above



Next page

Sample mean and the median of the following data are respectively given by

-1, 2, 0, 3, 3, 4, 2

Select one:

- 2 and 1.875
- 1.8571 and 2
- 1.7209 and 1.9863
- 1.574 and 2
- None of the above



# NetExam

Sri Lanka Institute of Information Technology

5

Answered

out of

Question

What are the outliers for the given data set below.

7, 23, 26, 27, 28, 30, 31, 34, 34

Select one:

- 1,3
- 31, 33
- 30, 31
- 1, 33
- No outliers



# NetExam

Sri Lanka Institute of Information Technology

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5  
answered  
out of  
question

☰ Qui

Finish att

Time left

QUESTION

In a district, the probability of having a power cut in a house will be 0.003.

What is the probability that 10 houses having the power cut, out of 1000 houses in this district? (Give your answer up to 5 decimal places)

What is the variance of this distribution?

What is the rate of the occurrence in this distribution?

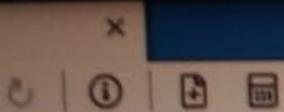
- Choose...
- 0.20018
- 0.00081
- 4.5
- 3
- 0.61110

Next page

1 2

9 10

17 18



# NetExam

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Consider the following probability function

$P(X=x)=cx^2$ ;  $x=3,4,5$ , where  $c$  is positive constant. Find  $c$ .

Select one:

- 0.2
- 0.2
- 0.02
- 2
- None of the above

If the number of arrivals in a queue is 10 per hour on average, determine the probability that, in any hour there will be

0 arrivals

Choose... ▾

6 arrivals

Choose... ▾

more than 6 arrivals

Choose... ▾

Choose... ▾

0.93291

0.06305

0.00005

0.86986

Nex



IT20125066 Chandrasena A.



NetExam

Sri Lanka Institute of Information Technology

**Question 8**

Not yet answered

Marked out of  
1.00

Flag question

Since the population size is always larger than the sample size, the sample statistic

Select one:

- can never be larger than the population parameter
- can never be equal to the population parameter
- some cases it can be equal to the population parameter
- can never be smaller than the population parameter
- None of the above

≡ Quiz navigat

Finish attempt...

Time left 0:30:18

QUESTIONS

1 2 3

8 9 10

15 16 17

FEEDBACK

21

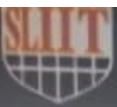
Next page

Most analysts focus on the cost of tuition as the way to measure the cost of a college education. But *incidentals*, such as textbook costs, are rarely considered. A researcher at Drummond University wishes to estimate the textbook costs of first-year students at Drummond. To do so, she monitored the textbook cost of 250 first-year students and found that their average textbook cost was \$300 per semester. Identify the variable of interest to the researcher.

Select one:

- The textbook cost of first-year Drummond University students.
- The year in school of Drummond University students.
- The age of Drummond University students.
- The cost of incidental expenses of Drummond University students.
- None of the above.

[Next page](#)



**Question 11**

Not yet answered

Marked out of  
1.00

Flag question

What is the probability that the sum of two die will be greater than 8, given that the first die is 6?

Select one:

- 1/2
- 3/4
- 2/3
- 7/12
- None of the above



Question 5

Not yet answered

Marked out of

0.00

Flag question

Select the correct answer from the below description

A survey conducted by a statistician interviewed 200 young men who didn't go to university. Of those who took restaurant jobs, one in two reached a higher level job and one in four reached a managerial position.

Select one:

- 200 young men are the population of interest
- The variable of interest is a qualitative variable.
- 25% is the population proportion of those who reached the managerial position.
- The sample size is not given in the description
- None of the above



Next page

A dresser drawer contains one pair of socks with each of the following colours: blue, brown, red, white and black. Each pair is folded together in a matching set. You reach into the sock drawer and choose a pair of socks without looking. You replace this pair and then choose another pair of socks. What is the probability that you will choose the red pair of socks both times?

Select one:

- 1/5
- 1/25
- 1/10
- 1/15
- None of the above



A personal computer user survey was conducted. Time of personal computer use per week is an example of a

Select one:

- Discrete numerical variable
- Continuous numerical variable
- Nominal categorical variable
- Ordinal categorical variable
- None of the above.



# NetExam

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it17021944

The statistics course consists of two (2) online quizzes. 22% of the class passed both tests and 41% of the class passed the first test. About what percent of those who passed the first test also passed the second test? (Round up the answer to the nearest integer)

Select one:

- 54%
- 20%
- 3%
- 24%
- None of the above

Next page

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Finish attempt

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QUESTIONS

1	2	3
9	10	11
17	18	19

FEEDBACK

21



# NetExam

Sri Lanka Institute of Information Technology

**Question 15**

Not yet answered

Marked out of  
2.00

Flag question

If A is the event, "The team wins at least 5 foot ball games", then  $A'$  is;

Select one:

- The team wins more than 5 foot ball games
- The team wins less than 5 foot ball games
- The team does not win any foot ball game
- There is no sufficient information to answer the question
- None of the above



**Question 4**

Not yet answered

Marked out of  
3.00

Flag question

Assuming that the weekly demand for a video recorder is a poisson variable with mean 3, find the probability that the shop sells

at least 3 in a week.

at most 7 in a week.

more than 20 in a month.

- Choose... ▾
- Choose...
- 0.57681
- 0.9881
- 0.08392
- 0.03351
- 0.0116

Next page

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question

Let A and B be events with  $P(A^C) = 1/2$ ,  $P(A \cup B) = 3/4$ ,  $P(A|B) = 1/3$  and  $P(B^C) = 5/8$  where  $A^C$  is the complement of A. Then  $P(A \cap B^C)$  is:

Select one:

- 1/8
- 3/8
- 6/8
- 7/8
- None of the above

[Next page](#)

# NetExam

Sri Lanka Institute of Information Technology

What is the probability that the sum of two die will be greater than 8, given that the first die is 6?

Select one:

- 1/2
- 3/4
- 2/3
- 7/12
- None of the above

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of  
question

Let A and B be events with  $P(A^C) = 1/2$ ,  $P(A \cup B) = 3/4$ ,  $P(A | B) = 1/3$  and  $P(B^C) = 5/8$  where  $A^C$  is the complement of A. Then  $P(A \cap B^C)$  is:

Select one:

- 1/8
- 3/8
- 6/8
- 7/8
- None of the above

[Next page](#)

1

FEEL

21



## Question 13

Not yet answered

Marked out of  
1.00

Flag question

At a certain school, 18% of all students play football and basketball and 32% of all students play football. What is the probability that a student plays basketball given that the student plays football? (Round up the answer to the nearest integer)

Select one:

- 56%
- 178%
- 50%
- 32%
- None of the above

≡ Quiz navigation

Finish attempt ...

Time left 0:24:21

QUESTIONS

1	2	3	4
8	9	10	11
15	16	17	18

FEEDBACK

21

Next page

21

When Joe bowls, he can get a strike (knock down all of the pins) 60% of the time. Assuming that all trials are independent and identical what is the probability for him to bowl zero strikes out of four tries?

Select one:

- 512/10000
- 256/1000
- 256/10000
- 128/10000
- None of the above

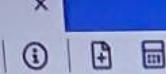
A garment factory produces large lots of a certain type of garments. What is the mean of the number of defective units found in a sample of 10 units if the lot is 2% defective?

Select one:

- 5
- 2
- 0.2
- 0.98
- None of the above



Next page

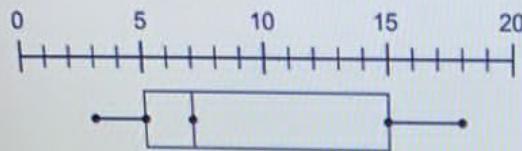


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According to the box-and-whisker plot, what is the maximum number of hot dogs eaten in the hot dog eating contest?

Hot Dogs Eaten by Contestants



Select one:

- 18
- 20
- 15
- 7
- 3

[Next page](#)

acer



**Question 15**

Not yet answered

Marked out of  
3.00

Flag question

If the number of arrivals in a queue is 10 per hour on average, determine the probability that, in any hour there will be

0 arrivals

Choose... ▾

Choose...

0.86986

0.00005

0.93291

0.06305

6 arrivals

more than 6 arrivals

[Next page](#)

The probability of a machine producing a defective part is 0.02.

What is the probability of having more than 5 defective parts, out of a sample of 200? (Round your answer upto 5 decimal places)

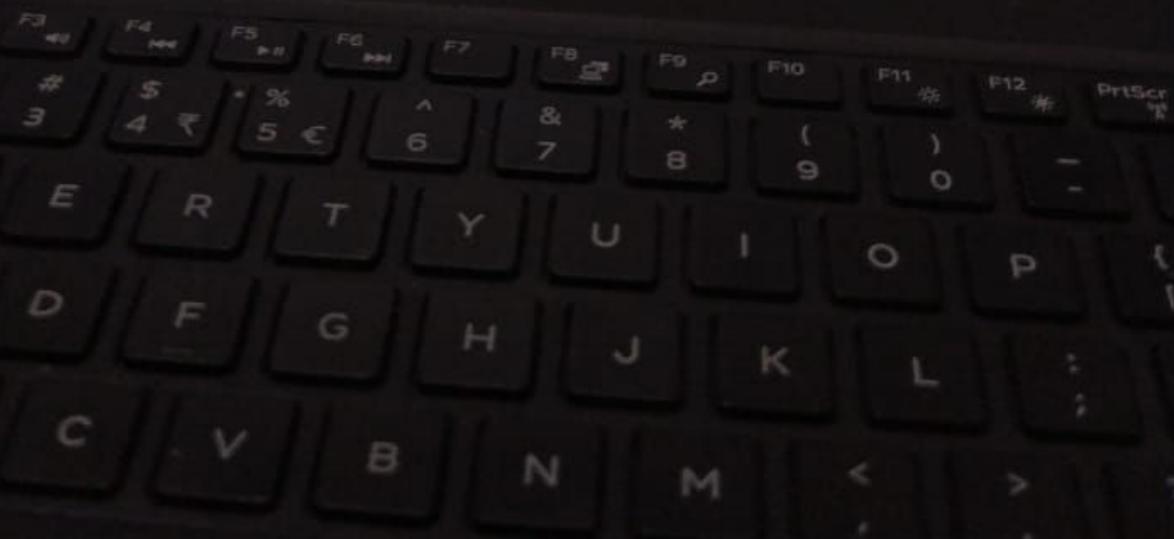
What is the rate of the occurrence in this distribution?

What is the variance of this distribution?

- Choose...
- Choose...
- 4
- 0.37116
- 2.92
- 0.41847
- 0.21487

Next p

DELL



**Institute of Information Technology**

The probability of a machine producing a defective part is 0.02.

The probability of having more than 5 defective parts, out of a sample of 2007 (Round your answer upto 5 decimal places)

- What is the probability of having more than 5 defective parts, out of a sample of 2007 (Round your answer upto 5 decimal places)
- What is the rate of the occurrence in this distribution?
- What is the variance of this distribution?

Choose...  
Choose...  
Choose...

Choose...  
Choose...  
Choose...

CH 1000

Mode and the median of the following data set respectively

6, 5, 5, 4, 3, 5

Select one:

- 6 and 6
- 5 and 6
- 5 and 5.5
- 5 and 5
- None of the above



# NetExam

Sri Lanka Institute of Information Technology

it17021944

**Question 6**

Not yet answered

Marked out of  
1.00

Flag question

The statistics course consists of two (2) online quizzes. 22% of the class passed both tests and 41% of the class passed the first test. About what percent of those who passed the first test also passed the second test? (Round up the answer to the nearest integer)

Select one:

- 54%
- 20%
- 3%
- 24%
- None of the above



[Next page](#)

Quiz na

Finish attempt

Time left 0:21:24

QUESTIONS

1 2 3

9 10 11

17 18 19

FEEDBACK

21

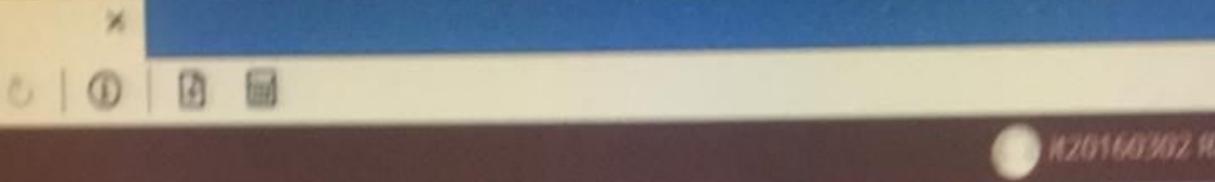
Let A and B be events with  $P(A^C) = 1/2$ ,  $P(A \cup B) = 3/4$ ,  $P(A|B) = 1/3$  and  $P(B^C) = 5/8$  where  $A^C$  is the complement of A. Then  $P(A \cap B^C)$  is:

Select one:

- 1/8
- 3/8
- 6/8
- 7/8
- None of the above



Next page



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A garment factory produces large lots of a certain type of garments. What is the mean of the number of defective units found in a sample of 10 units if the lot is 2% defective?

Select one:

- 5
- 2
- 0.2
- 0.98
- None of the above

[Next page](#)

Moodle

NetExam  
Sri Lanka Institute of Information Technology

Question 18  
Not yet answered  
Marked out of 2.00  
Flag question

Find the outliers, if any, for the following data set

18 44 47 55 61 62 78 79 83 145

Hint: Outlier is defined as a value  $x$ , holding the following conditions.  
 $x > Q3 + 1.5 \times (\text{Inter Quartile Range})$   
 $x < Q1 - 1.5 \times (\text{Inter Quartile Range})$

Is "18" an outlier? Yes

Is "145" an outlier? No

Next page

accer

1 2  
8 9  
15 16  
21

The probability that a patient recovers from a heart operation is 0.9. What is the probability that at least 2 of the next three patients who have this operation recover? (Don't use any approximation)

Select one:

- 0.8960
- 0.9720
- 0.7890
- 0.5960
- None of the above



Nex

Determining the sample interval (represented by  $k$ ), randomly selecting a number between 1 and  $k$ , and including each  $k$ th element in your sample are the steps for which form of sampling?

Select one:

- Simple Random Sampling
- Stratified Random Sampling
- Systematic Sampling
- Cluster sampling
- None of the above



Next



Assuming that the weekly demand for a video recorder is a poisson variable with mean 3, find the probability that the shop sells

at least 3 in a week.

at most 7 in a week.

more than 20 in a month.

Choose... ▾

Choose...

0.08392

0.9881

0.03351

0.57681

0.0116



Next pag



To be an outlier for the following data set, data points should lie between,

10.2, 14.1, 14.4, 14.4, 14.4, 14.5, 14.5, 14.6, 14.7, 14.7, 14.7, 14.7, 14.9, 15.1, 15.9, 16.4

Hint: Outlier is defined as a value  $x$ , holding the following conditions.

$$x > Q3 + 1.5 * (\text{Inter Quartile Range})$$

$$x < Q1 - 1.5 * (\text{Inter Quartile Range})$$

Upper bound	<input type="button" value="Choose..."/>
Lower bound	<input type="button" value="Choose..."/> <b>15.25</b> 13.15 15.35 16.15 13.65 13.45 15.45 12.45 15.65

Next page



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**Question 15**

Not yet answered

Marked out of  
2.00

Flag question

X	-10	-20	30
P(X)	1/5	3/10	1/2

Let  $X$  be a random variable with the probability distribution given above. The mean of  $g(X) = 2X$  is:

Select one:

- 1
- 7
- 14
- 1
- None of the above

The below transformation is applied to a data set

$$Y = 3X + 4$$

Where X is old data and Y is New data. If the variance of the old data set is 5. The variance of the new data set is,

Select one:

- 49
- 5
- 9
- 45
- None of the above



Module

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Q 19

1 answered  
1 out of  
1 question

At a certain school, 18% of all students play football and basketball and 32% of all students play football. What is the probability that a student plays basketball given that the student plays football? (Round up the answer to the nearest integer)

Select one:

- 56%
- 178%
- 50%
- 32%
- None of the above

Next page

hp

AUDI



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Question **20**

Not yet answered

Marked out of  
3.00

Flag question

The number of misprints on a page of the Daily Mercury has a Poisson distribution with mean 1.2. Find the probability errors

on page four is 2.

Choose... ▾

on page three is less than 3.

Choose... ▾

on the first ten pages totals 5.

Choose... ▾

Choose...  
0.12051  
0.01274  
0.69881  
0.87949  
0.21686

The purpose of stratified random sampling is to make certain that,

Select one:

- Every member of the population has an equal chance of being selected for the sample.
- The sample proportionately represents individuals from different categories of the population.
- The participants chosen for the study are the ones most likely to react to the treatment.
- The sample is more representative of the actual population than the accessible population.
- None of the above



The statistics course consists of two (2) online quizzes. 22% of the class passed both tests and 41% of the class passed the first test. About what percent of those who passed the first test also passed the second test? (Round up the answer to the nearest integer)

Select one:

- 54%
- 20%
- 3%
- 24%
- None of the above

Next page

A personal computer user survey was conducted. Time of personal computer use per week is an example of a

Select one:

- Discrete numerical variable
- Continuous numerical variable
- Nominal categorical variable
- Ordinal categorical variable
- None of the above.



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16

answered  
out of  
question

A and B are two events.  $P(A \text{ and } B)$ ' is equal to;

Select one:

- $P(A' \text{ or } B)$
- $P(A \text{ and } B')$
- $P(A' \text{ and } B')$
- $P(A' \text{ or } B')$
- None of the above.



Determine the value of k so that the function  $P(X=x) = kx$  for  $x=1,2,3,4,5,6$  can serve as a probability distribution of the discrete variable X.

Select one:

- 3/21
- 5/21
- 1/21
- 2/21
- None of the above



To be an outlier for the following data set, data points should lie between,

10.2, 14.1, 14.4, 14.4, 14.4, 14.5, 14.5, 14.6, 14.7, 14.7, 14.7, 14.7, 14.9, 15.1, 15.9, 16.4

Hint: Outlier is defined as a value  $x$ , holding the following conditions.

$$x > Q3 + 1.5 * (\text{Inter Quartile Range})$$

$$x < Q1 - 1.5 * (\text{Inter Quartile Range})$$

Upper bound

Choose... ▾

Choose...

Lower bound

15.35

15.25

13.15

16.15

13.65

15.65

12.45

13.45

15.45

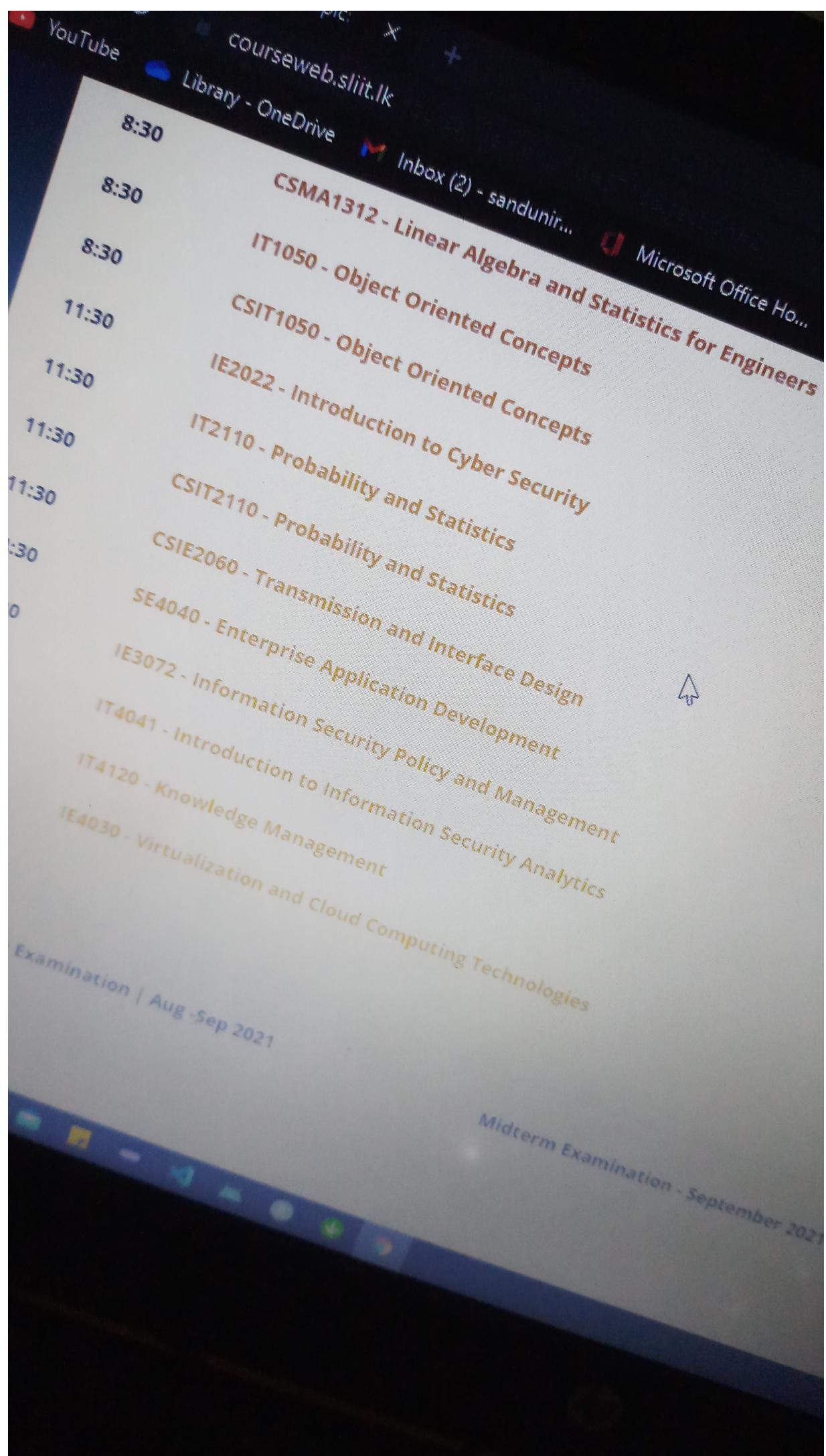


Sri Lanka Institute of Information Technology

Let  $E$  be an event and  $E'$  is its complement. If  $P(E) = 1/3$ , what is  $P(E')$ ?

Select one:

- $P(E') = P(E) = 1/3$
- $P(E') = P(E) - 1 = -2/3$
- $P(E') = 2 * P(E) = 2/3$
- $P(E') = 1 - P(E) = 2/3$
- None of the above



$x > Q3 + 1.5 * (\text{Inter Quartile Range})$

$x < Q1 - 1.5 * (\text{Inter Quartile Range})$

Is "145" an outlier?

Choose... ▾

Choose...

No

Yes

Is "18" an outlier

After studying a couple's family history, a doctor determines that the probability of any child born to this couple having a gene for disease X is 1 out of 4. If the couple has three children, what is the probability that exactly two of the children have the gene for disease X?

Select one:

- 9/64
- 10/64
- 12/64
- 7/64
- None of the above



## Question 7

Not yet answered

Marked out of  
1.00

Flag question

This stem and leaf plot shows the number of cookies that Tia's Girl Scout troop sold each week. How many weeks did they sell cookies?

Stem	Leaf
5	1 1 4
6	4 5 6
7	2 2
8	3 6 7 7

Select one:

- 4
- 87
- 12
- 51
- The Stem and leaf plot do not say.

[Next page](#)

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9

17

FEEDB

21

When each member of a population has an equally likely chance of being selected, this is called:

Select one:

- A nonrandom sampling method.
- A quota sample.
- A judgement sampling
- A simple random sample.
- None of the above.

The type of sampling in which each member of the population selected for the sample is returned to the population before the next member is selected is called,

Select one:

- Sampling without replacement
- Sampling with replacement
- Simple random sampling
- Systematic sampling
- None of the above

Next page