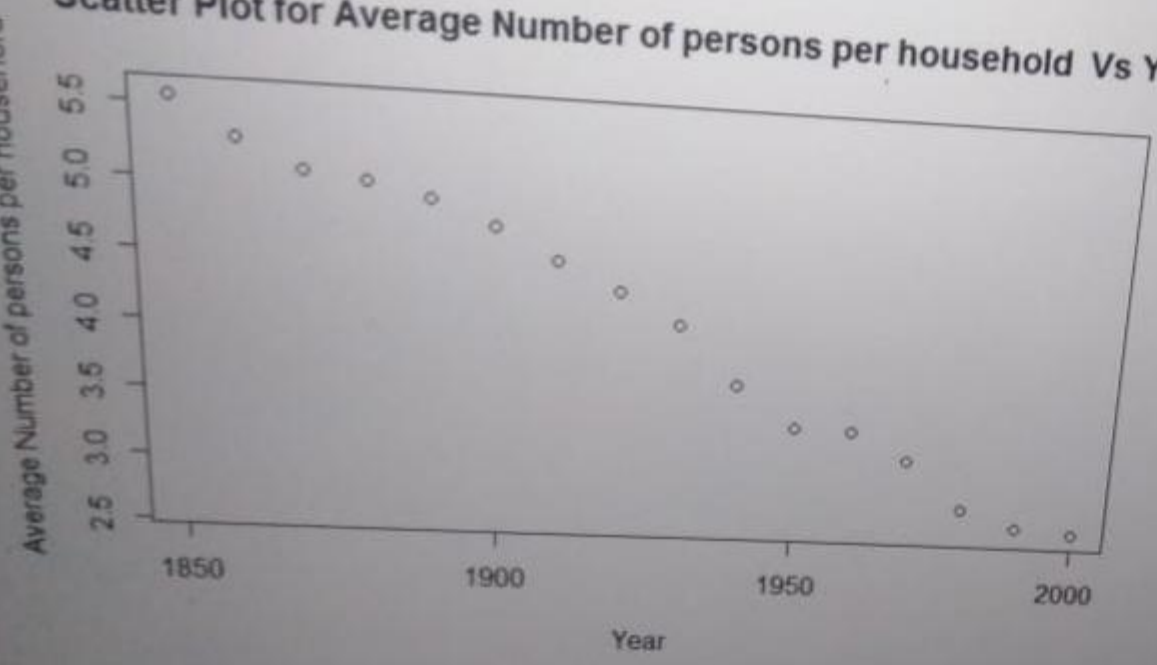
U.S. Census Bureau estimates of the average number of persons per household in the United States for ce
2000 are extracted from the file perhouse on the companion website. Figure below displays the scatter plot



R outputs of the regression model are shown below.

Regression Model

Coefficients

Response: Acid content of material

	Df	Sum Sq	Mean Sq	F value
Organic acid content	A	C	2517.02	G
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 :
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")

i. What can be concluded using the scatter plot?

There is a positive linear relationship in between organic acid content and acid

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 cont

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. F

v. Use the regression equation to predict the acid content of material if organ

82.2306 units

7.00

Flag question

companion website.)

Year	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	20
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	2.5

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)

Sri Lanka Institute of Information Technology

A researcher is interested in finding whether there is any relationship in between temperature an through solid helium. Temperature is measured in degrees centigrade (^{0}C). He used a sample size information is given.

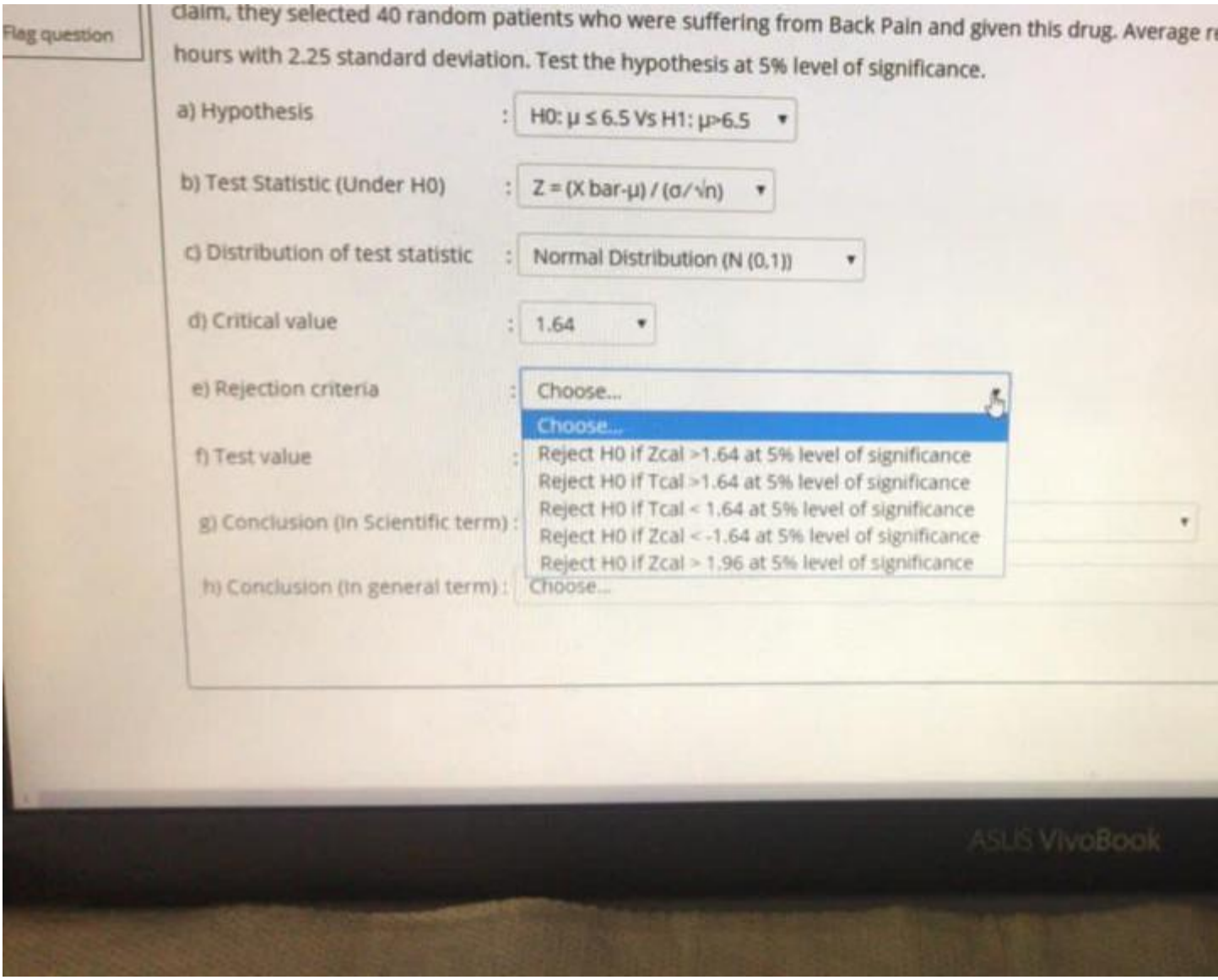
$\sum x$= -2685.6 $\sum y$ = 7.007 $\sum xy$ = -1893.5644 $\sum (x^2)$= 721454.96 $\sum (y^2)$ = 5.634

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 de

(Type your answer within the given space)

Answer:


Flag question
claim, they selected 40 random patients who were suffering from Back Pain and given this drug. Average r
hours with 2.25 standard deviation. Test the hypothesis at 5% level of significance.
a) Hypothesis : H0: μ ≤ 6.5 Vs H1: μ>6.5
b) Test Statistic (Under H0) : Z = (X bar-μ) / (σ/√n)
c) Distribution of test statistic : Normal Distribution (N (0,1))
d) Critical value : 1.64
e) Rejection criteria : Choose...
Choose...
Reject H0 if Zcal >1.64 at 5% level of significance
Reject H0 if Tcal >1.64 at 5% level of significance
Reject H0 if Tcal < 1.64 at 5% level of significance
Reject H0 if Zcal < -1.64 at 5% level of significance
Reject H0 if Zcal > 1.96 at 5% level of significance
f) Test value :
g) Conclusion (In Scientific term) :
h) Conclusion (In general term) : Choose...
ASUS VivoBook

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
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 p
2. Probability that life time of a truck tire is 45000 to 58900 miles : (Keep all the decim
3. What is the life time (in miles) where 38% of truck tires took less than this life time? mil
   integer)

(Type your answers within the given spaces)

Online Exams

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
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 d
2. Probability that a COVID-19 infected woman has pulse rate in between 55 and 90 : 0.9634 (Ke
   answer)
3. At which pulse rate, 30% of COVID-19 infected women have more than that pulse rate? (K
   points)

(Type your answers within the given spaces)

Online Exams

Sri Lanka Institute of Information Technology

n 1
t answered
d out of
g question

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

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

a) Find *k* value *(Round off your answer to three decimal values)* : 0.5

b) Find Expected Value *(Round off your answer to three decimal values)* : 0

c) Find Variance *(Round off your answer to three decimal values)* : 0

d) Find $F_X(0.7)$ *(Round off your answer to three decimal values)* : 1.122

(Type the correct answers within the given spaces)

Online Exams

Sri Lanka Institute of Information Technology

A researcher is interested in finding whether there is any relationship in between temperature and through solid helium. Temperature is measured in degrees centigrade (^{0}C). He used a sample size o information is given.

$\sum x$= -2685.6 $\sum y$ = 7.007 $\sum xy$ = -1893.5644 $\sum (x^2)$= 721454.96 $\sum (y^2)$ = 5.63454

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 decim

(Type your answer within the given space)

Answer:

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
in the packet cover. In the cover it mentioned as 15.5 g. They took a random sample of 25 fertilizer p
of the sample were calculated as 15.0 g and 2.2. Test the manufacturing company's claim at 5%level

a) Hypothesis : H0: $\mu \geq 15.5$ Vs H1: $\mu < 15.5$

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

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

d) Critical value : -1.711

e) Rejection criteria : Reject H0 if Tcal< -1.711 at 5% level of significance.

f) Test value : -1.14

g) Conclusion (In Scientific term) : Since Tcal = -1.14 is greater than -1.711, we do not reject H0 at 5% leve

h) Conclusion (In general term) :

We don't have enough evidence to suggest that actual mean potassium content is less than the mentioned

A company, which produced candy products, required to test whether the average sugar cor
which is marked on the label. In the label it is marked as 2.5 g. From the previous studies it h
standard deviation of 0.15 and it is normally distributed. A group of researchers conducted a
sample of 28 toffees. Sample average sugar content was 2.4 g. Test the hypothesis at 5% leve

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...

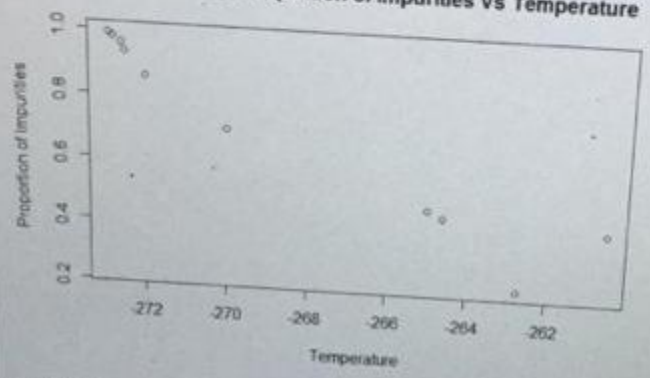
g) Conclusion (In Scientific term): Choose...

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 temperature and the proportion of impurities passing through solid helium. Temperature is measured in degrees centigrade (^{0}C). He used a sample size of 10 to study this relationship. Figure below displays the scatter plot for the data.



R outputs of the regression model are shown below.

A Continuous random variable X has a probability density function

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

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

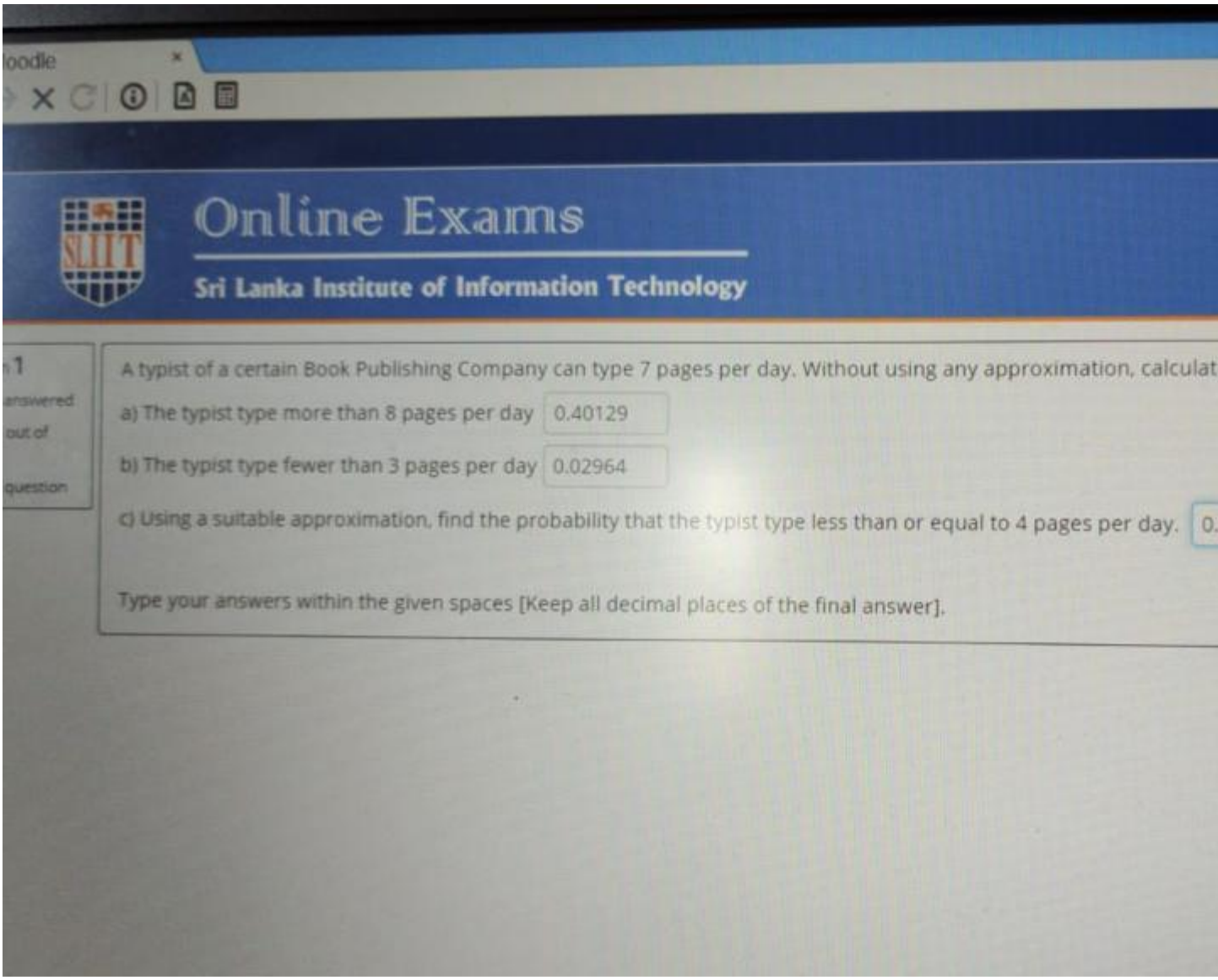
b) Find Expected Value *(Round off your answer to three decimal values*

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)

Exams
Institute of Information Technology
that average life time of a truck tire is 50500 miles with a standard deviation of 2500 mile
lities.
of a truck tire is at least 60000 miles : 0.9999 (Keep all the decimal places in the answe
uck tire is 45000 to 58900 miles : 0.9861 (Keep all the decimal places in the answer)
e 38% of truck tires took less than this life time? 51264 miles (Give the answer to the ne


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

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 St
2000 are shown in the following table with the ANOVA output for the fitted regression model. (T
companion website.)

Year	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980
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

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)

From past records, suppose that on a typical day, 30% of students drive to campus, 60% of the student
remaining 10% come to campus in some other way (Eg:- By walk, take the bus, get a ride). The campus
encourage people not to drive to campus. After the program, they want to know whether these proport
hypothesis, a random sample of 300 students on a particular day was asked how they got to campus. Fo

Transportation mode	Drive	Bike	Other	Tota
Frequency	100	150	50	300

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

1. Hypothesis: Choose...
2. Distribution of test statistic: Choose...
3. Significance level:
4. Critical value: Choose...
5. Rejection criteria: Choose...
6. Test value: Choose...
7. Conclusion (in Scientific term): Choose...
8. Conclusion (in General term): Choose...

Online Exams

Sri Lanka Institute of Information Technology

on 7
t answered
ed out of
g question

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

1. Probability that a COVID-19 infected woman has less than 70 pulse rate : 0.73237 (Keep all
   the answer)
2. Probability that a COVID-19 infected woman has pulse rate in between 55 and 90 : 0.96305
   decimal places in the answer)
3. At which pulse rate, 30% of COVID-19 infected women have more than that pulse rate? 79.16
   with two decimal points)

(Type your answers within the given spaces)

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. ▾

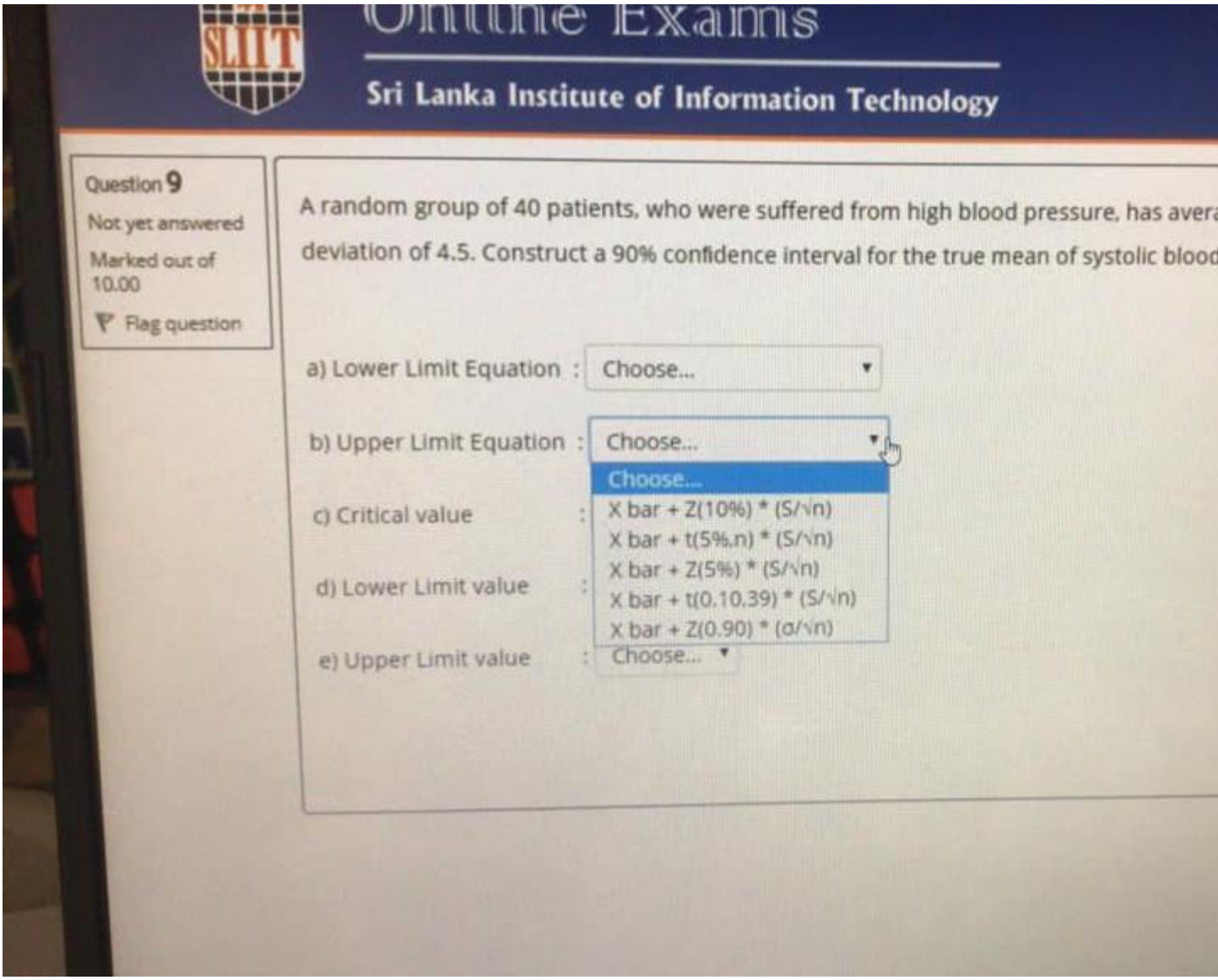
ii. State the estimated regression equation. Estimated Weekly sales = 316.025 + 4.241 (Weekly adve

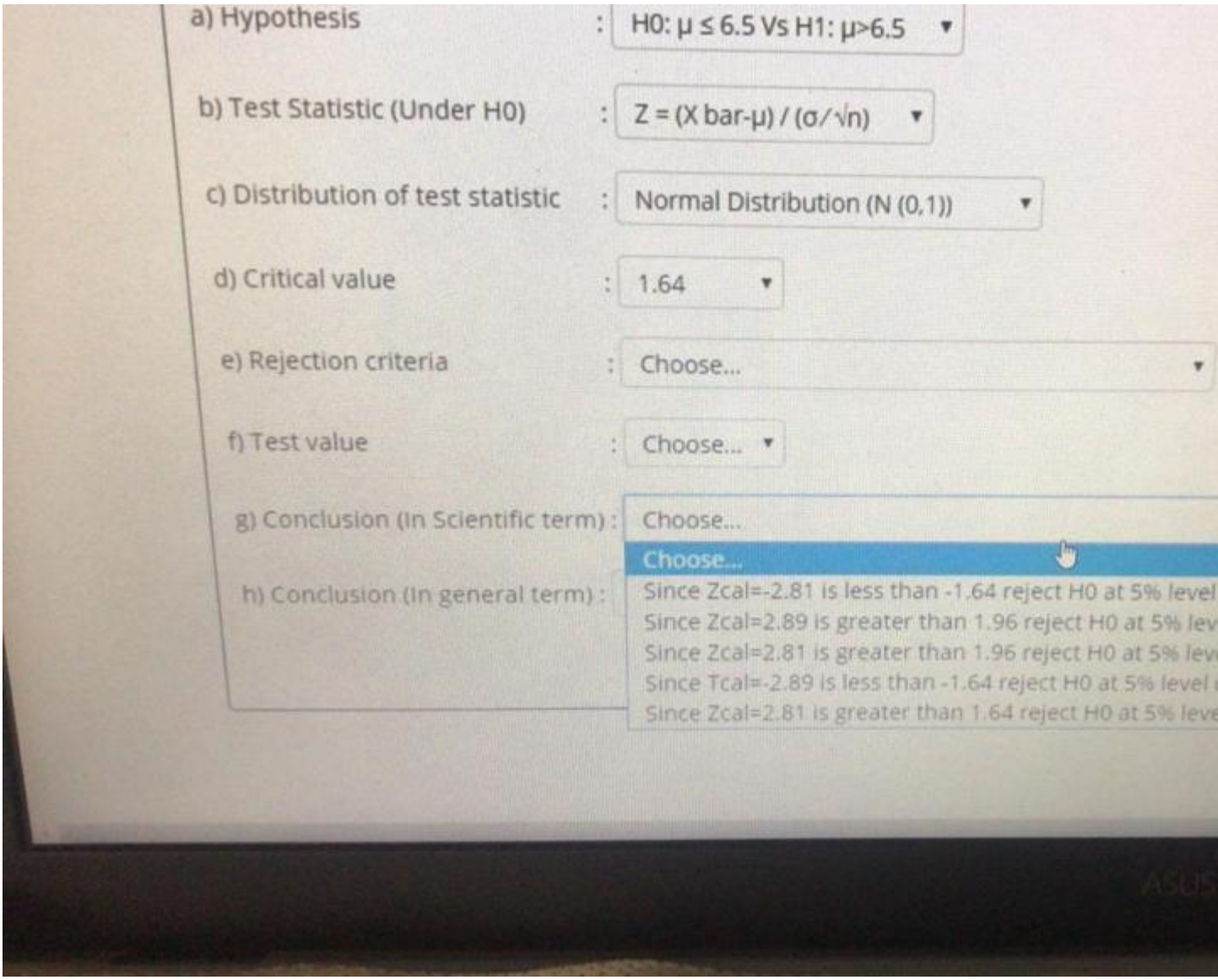
iii. State in how much weekly sales will change if weekly advertising expenditure increased by one un

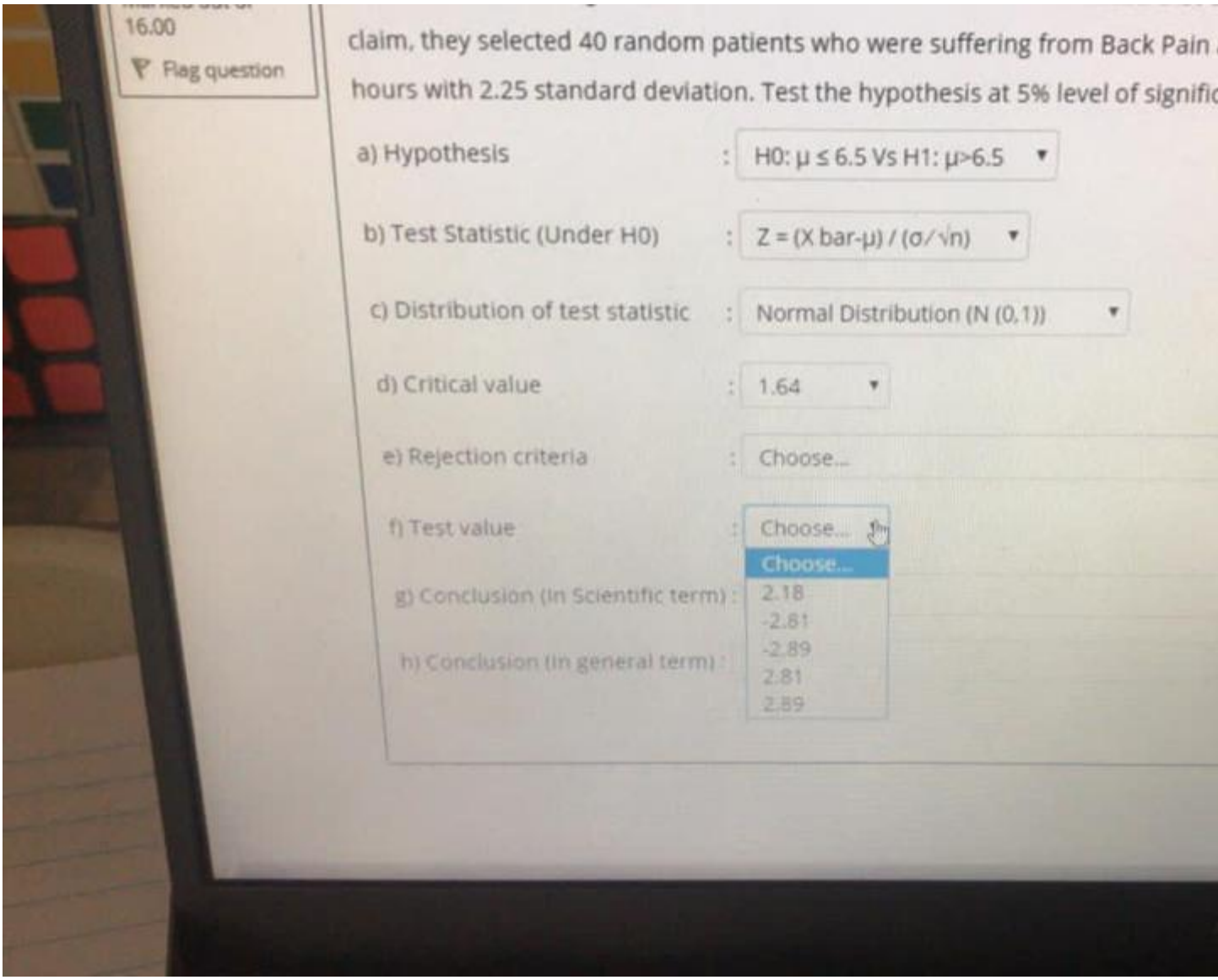
Weekly sales will increase by 4.241$. ▾

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

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


Online Exams
Sri Lanka Institute of Information Technology
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 avera
deviation of 4.5. Construct a 90% confidence interval for the true mean of systolic blood
a) Lower Limit Equation : Choose...
b) Upper Limit Equation : Choose...
Choose...
X bar + Z(10%) * (S/√n)
X bar + t(5%,n) * (S/√n)
X bar + Z(5%) * (S/√n)
X bar + t(0.10,39) * (S/√n)
X bar + Z(0.90) * (σ/√n)
c) Critical value :
d) Lower Limit value :
e) Upper Limit value : Choose...


a) Hypothesis : H0: μ ≤ 6.5 Vs H1: μ>6.5
b) Test Statistic (Under H0) : Z = (X bar-μ) / (σ/√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 Zcal=-2.81 is less than -1.64 reject H0 at 5% level
Since Zcal=2.89 is greater than 1.96 reject H0 at 5% lev
Since Zcal=2.81 is greater than 1.96 reject H0 at 5% lev
Since Tcal=-2.89 is less than -1.64 reject H0 at 5% level
Since Zcal=2.81 is greater than 1.64 reject H0 at 5% leve


16.00
Flag question
claim, they selected 40 random patients who were suffering from Back Pain
hours with 2.25 standard deviation. Test the hypothesis at 5% level of signific
a) Hypothesis : H0: μ ≤ 6.5 Vs H1: μ>6.5
b) Test Statistic (Under H0) : Z = (X bar-μ) / (σ/√n)
c) Distribution of test statistic : Normal Distribution (N (0,1))
d) Critical value : 1.64
e) Rejection criteria : Choose...
f) Test value : Choose...
Choose...
2.18
-2.81
-2.89
2.81
2.89
g) Conclusion (In Scientific term) :
h) Conclusion (In general term) :

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

a) Hypothesis : H0: μ ≥ 35 Vs H1: μ < 35

b) Test Statistic (Under H0) : Choose...

c) Distribution of test statistic : Choose...

d) Critical value : 1.96

e) Rejection criteria : Choose...

f) Test value : Choose...

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

h) Conclusion (In general term) :

Choose...

tion 10

yet answered

rked out of
00

Flag question

A group of researchers wants to investigate the mean relief time given by a certain drug for Back Pain. Pa
stated that the average relief time is 6.5 hours. But researchers stated that the relief time should be great
claim, they selected 40 random patients who were suffering from Back Pain and given this drug. Average r
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...

d) Critical value : Choose...

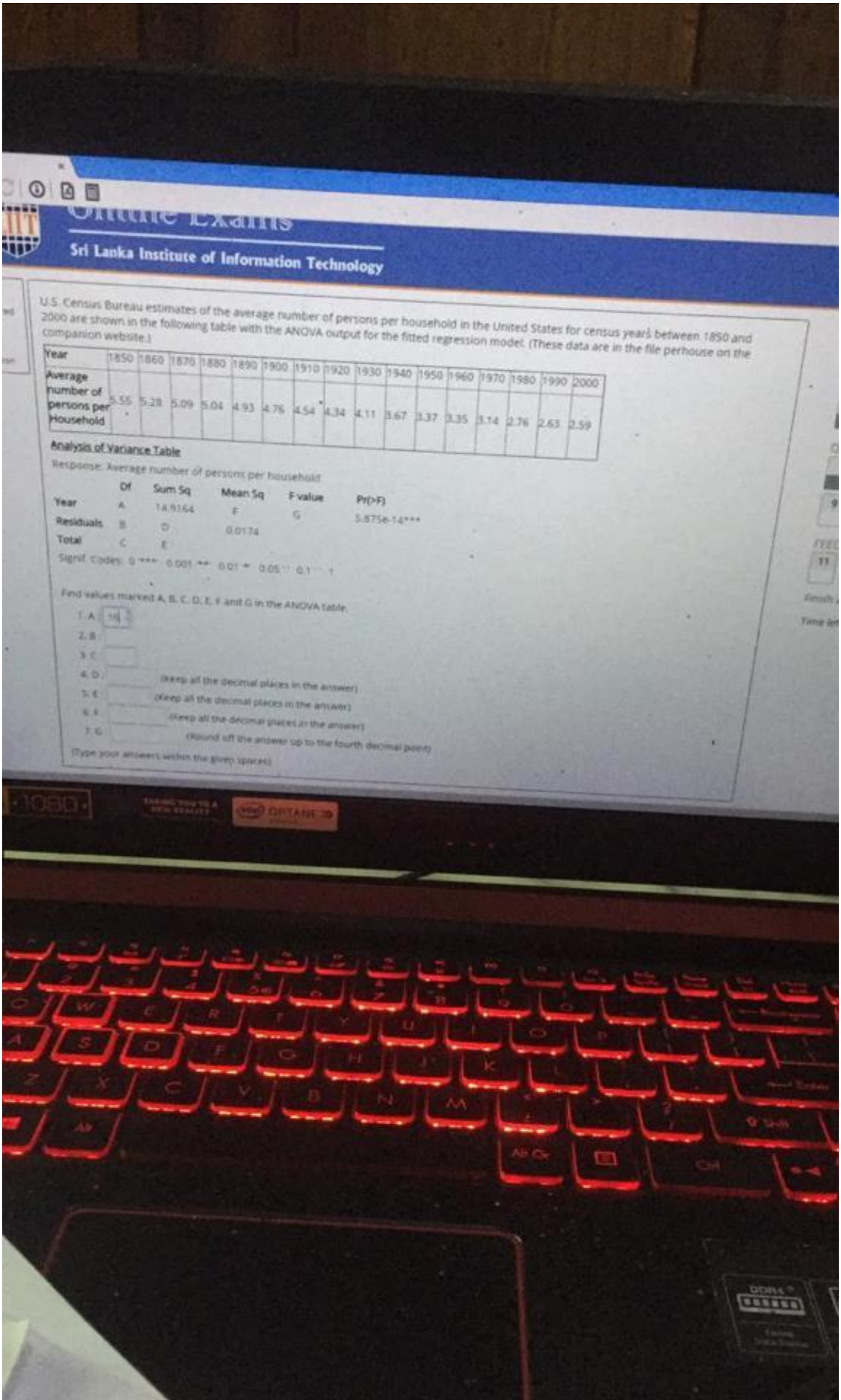
e) Rejection criteria : Choose...

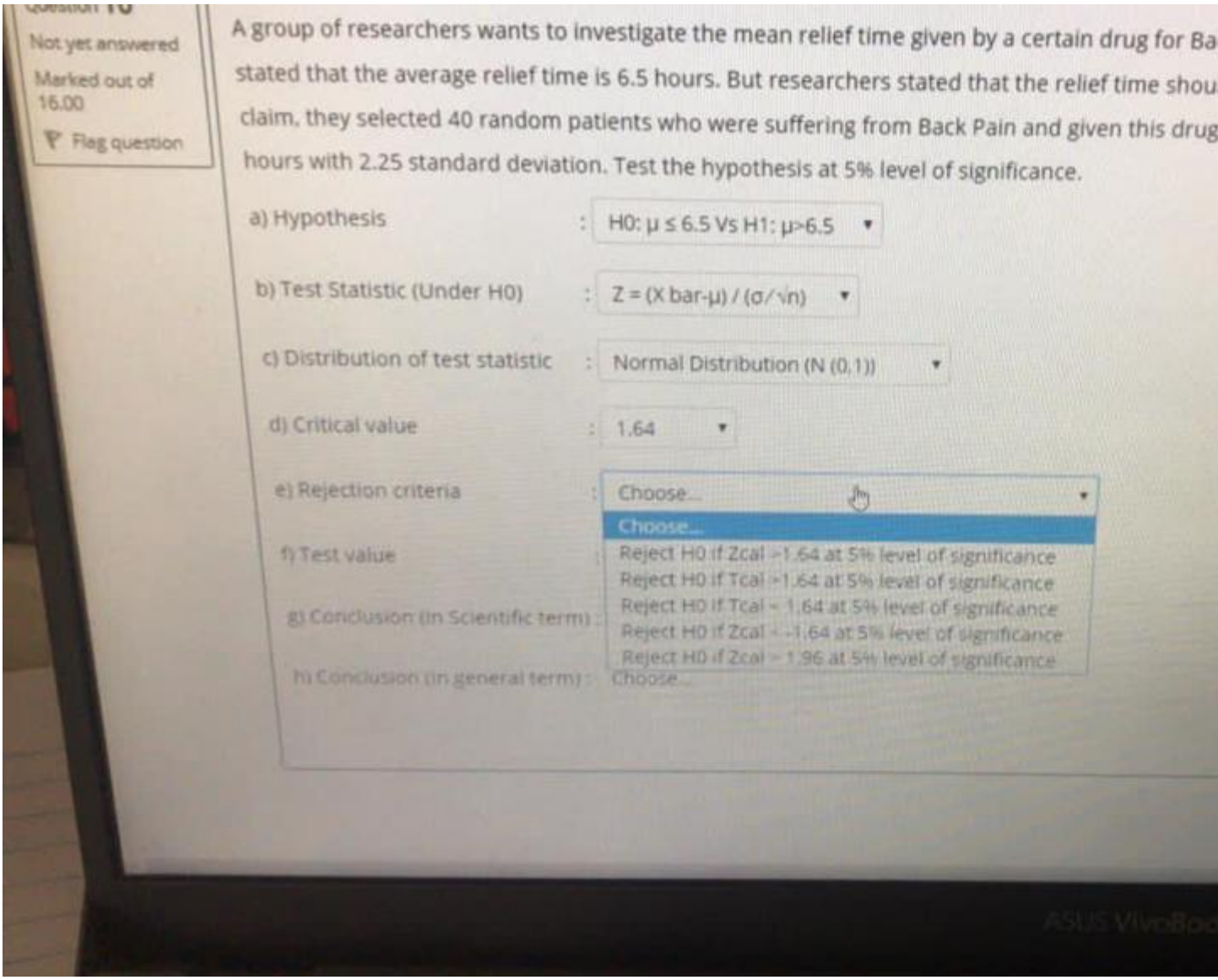
f) Test value : Choose...

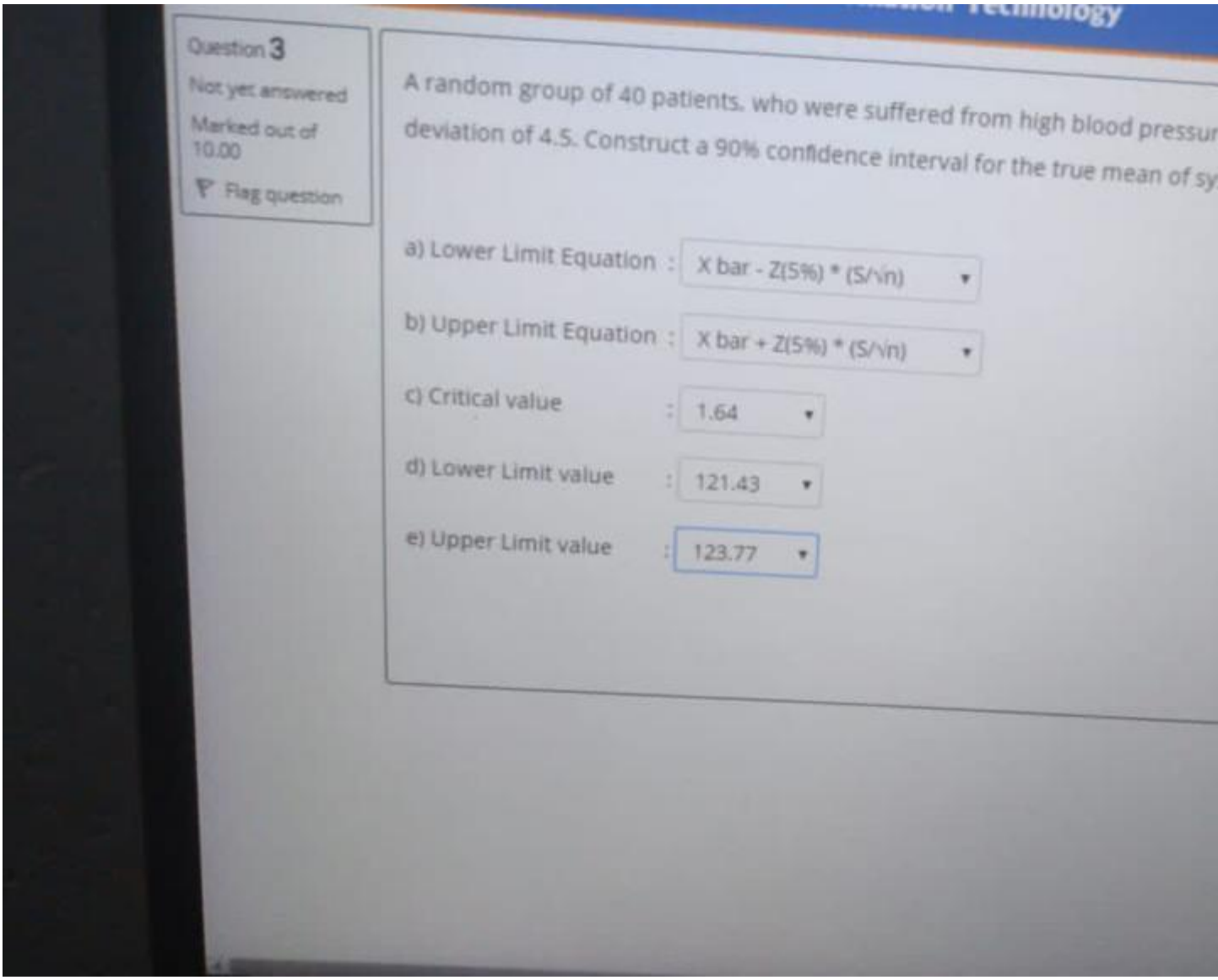
g) Conclusion (In Scientific term) : Choose...

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

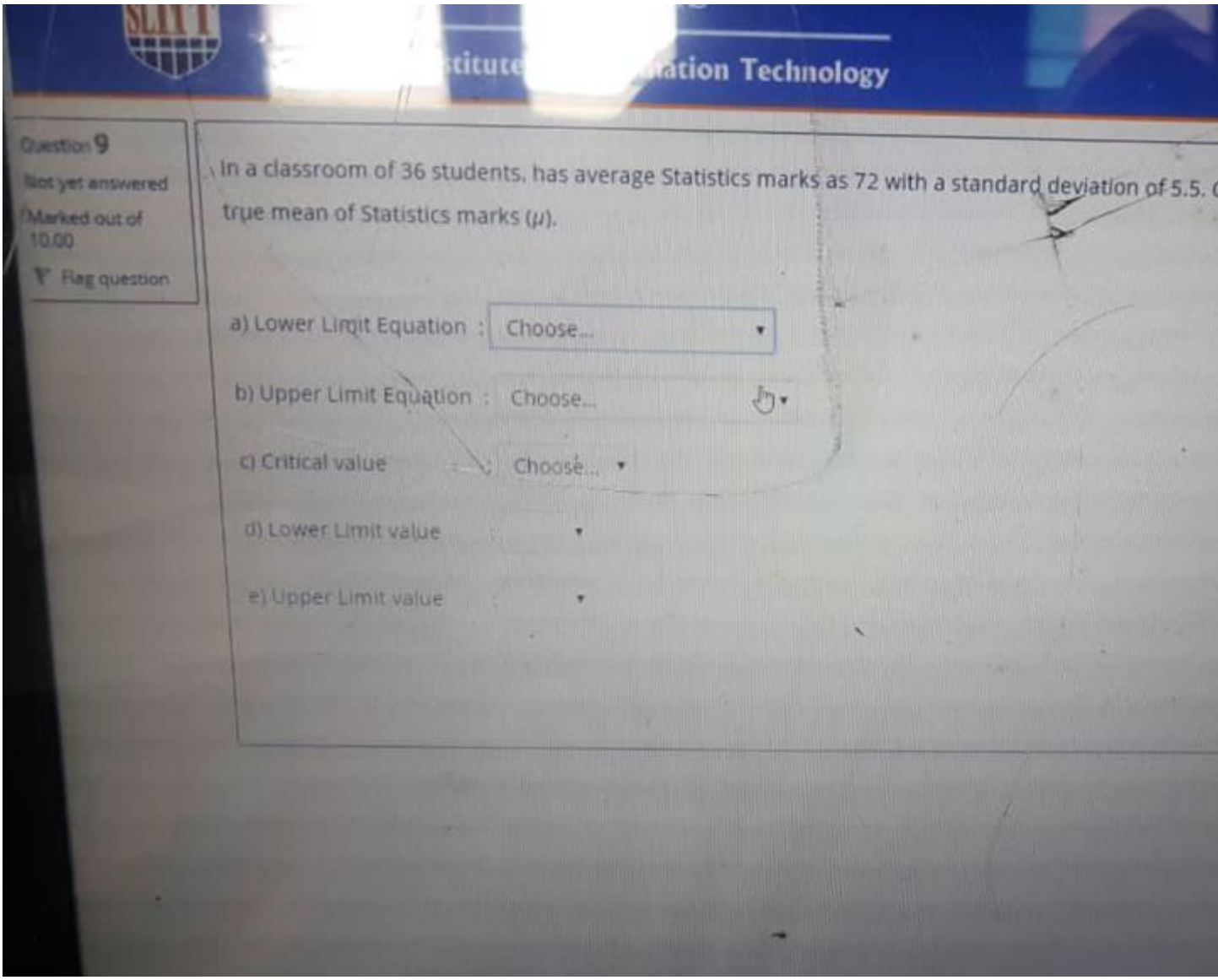
ASUS VivoBook

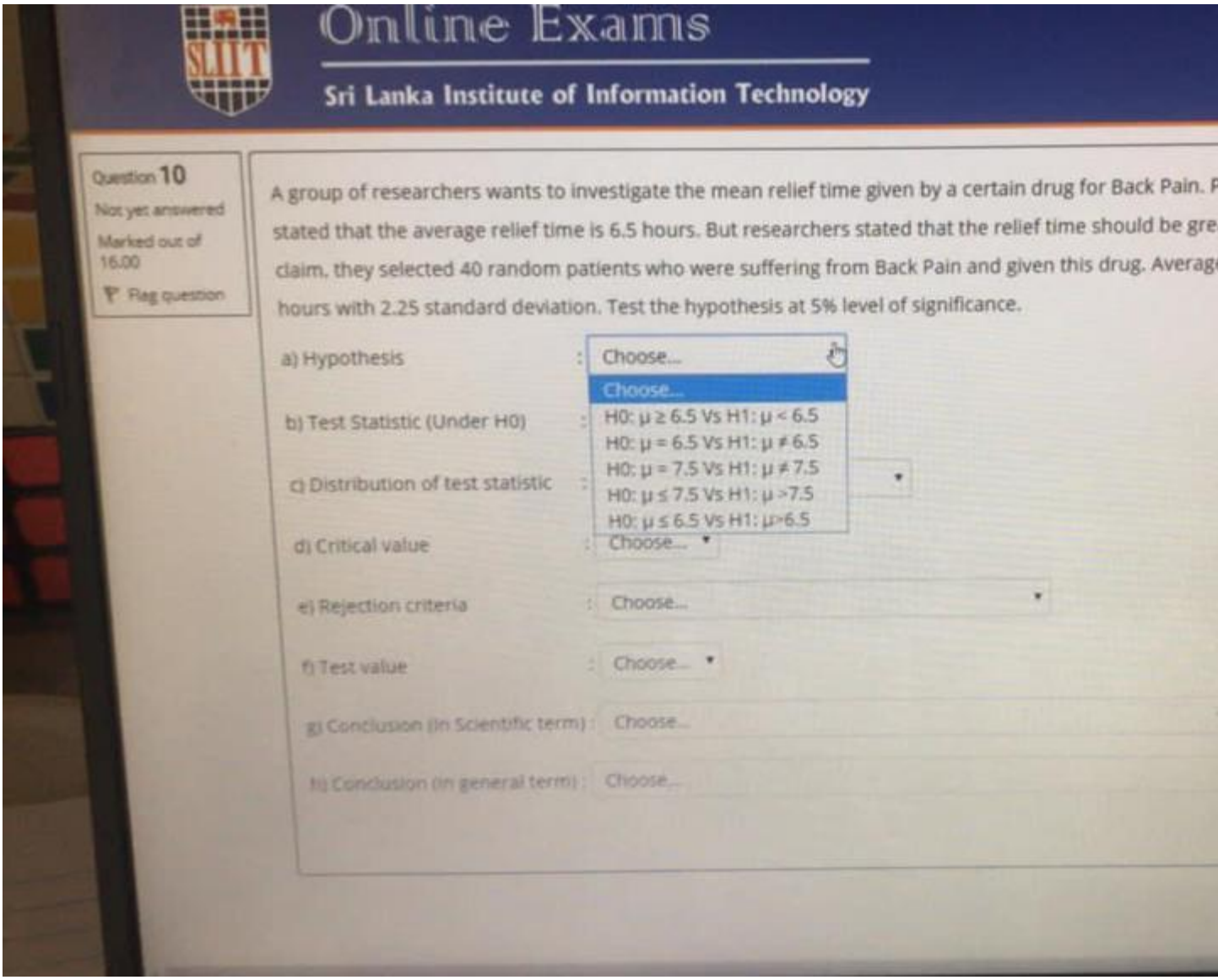

Online Exams
Sri Lanka Institute of Information Technology
U.S. Census Bureau estimates of the average number of persons per household in the United States for census years between 1850 and 2000 are shown in the following table with the ANOVA output for the fitted regression model. (These data are in 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 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)


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 Ba
stated that the average relief time is 6.5 hours. But researchers stated that the relief time shou
claim, they selected 40 random patients who were suffering from Back Pain and given this drug
hours with 2.25 standard deviation. Test the hypothesis at 5% level of significance.
a) Hypothesis : H0: μ ≤ 6.5 Vs H1: μ>6.5
b) Test Statistic (Under H0) : Z = (X bar-μ) / (σ/√n)
c) Distribution of test statistic : Normal Distribution (N (0,1))
d) Critical value : 1.64
e) Rejection criteria : Choose...
Choose...
Reject H0 if Zcal >1.64 at 5% level of significance
Reject H0 if Tcal >1.64 at 5% level of significance
Reject H0 if Tcal = 1.64 at 5% level of significance
Reject H0 if Zcal < -1.64 at 5% level of significance
Reject H0 if Zcal = 1.96 at 5% level of significance
f) Test value
g) Conclusion (in Scientific term)
h) Conclusion (in general term) : Choose...


Question 3
Not yet answered
Marked out of 10.00
Flag question
A random group of 40 patients. who were suffered from high blood pressur
deviation of 4.5. Construct a 90% confidence interval for the true mean of sy
a) Lower Limit Equation : X bar - Z(5%) * (S/√n)
b) Upper Limit Equation : X bar + Z(5%) * (S/√n)
c) Critical value : 1.64
d) Lower Limit value : 121.43
e) Upper Limit value : 123.77

The Symbol	What It M
$<$	less than fewer than
$\leq$	less than or no more th does not ex at most
$>$	greater tha more than exceeds
$\geq$	greater tha at least no less than


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.
true mean of Statistics marks (μ).
a) Lower Limit Equation : Choose...
b) Upper Limit Equation : Choose...
c) Critical value : Choose...
d) Lower Limit value :
e) Upper Limit value :


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. P
stated that the average relief time is 6.5 hours. But researchers stated that the relief time should be gre
claim, they selected 40 random patients who were suffering from Back Pain and given this drug. Averag
hours with 2.25 standard deviation. Test the hypothesis at 5% level of significance.
a) Hypothesis : Choose...
b) Test Statistic (Under H0) :
c) Distribution of test statistic :
d) Critical value : Choose...
e) Rejection criteria : Choose...
f) Test value : Choose...
g) Conclusion (in Scientific term) : Choose...
h) Conclusion (in general term) : Choose...
Choose...
H0: μ ≥ 6.5 Vs H1: μ < 6.5
H0: μ = 6.5 Vs H1: μ ≠ 6.5
H0: μ = 7.5 Vs H1: μ ≠ 7.5
H0: μ ≤ 7.5 Vs H1: μ >7.5
H0: μ ≤ 6.5 Vs H1: μ>6.5

tion 7

et answered

ed out of

g question

A group of researchers wants to investigate the mean relief time given by a certain drug for Back Pain. Past
stated that the average relief time is 6.5 hours. But researchers stated that the relief time should be greater
claim. they selected 40 random patients who were suffering from Back Pain and given this drug. Average rel
hours with 2.25 standard deviation. Test the hypothesis at 5% level of significance.

a) Hypothesis : H0: $\mu \leq 6.5$ Vs H1: $\mu > 6.5$

b) Test Statistic (Under H0) : $Z = (\bar{X} - \mu) / (\sigma/\sqrt{n})$

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 1

Not yet answered

Marked out of 7.00

Flag question

A study of the amount of rainfall (X) and the quantity of air pollu
relationship between the daily rainfall and particulate removed
regression model is as follows.

Analysis of Variance Table

Response: Particulate Removed

	Df	Sum Sq	Mean Sq	F value	Pr(
Rainfall	A	770.26	F	G	4.5
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 : 1
2. B : 7
3. C : 8
4. D : 33.95 (Keep all the decimal places in the answer)
5. E : 804.21 (Keep all the decimal places in the answer)
6. F : 770.26 (Keep all the decimal places in the answer)
7. G : 158.82 (Round off the answer up to the secon

(Type your answers within the given spaces)

Online Exams

Sri Lanka Institute of Information Technology

on 9
et answered
ed out of
)
lag question

A random group of 40 patients, who were suffered from high blood pressure, has average syst
deviation of 4.5. Construct a 90% confidence interval for the true mean of systolic blood pressu

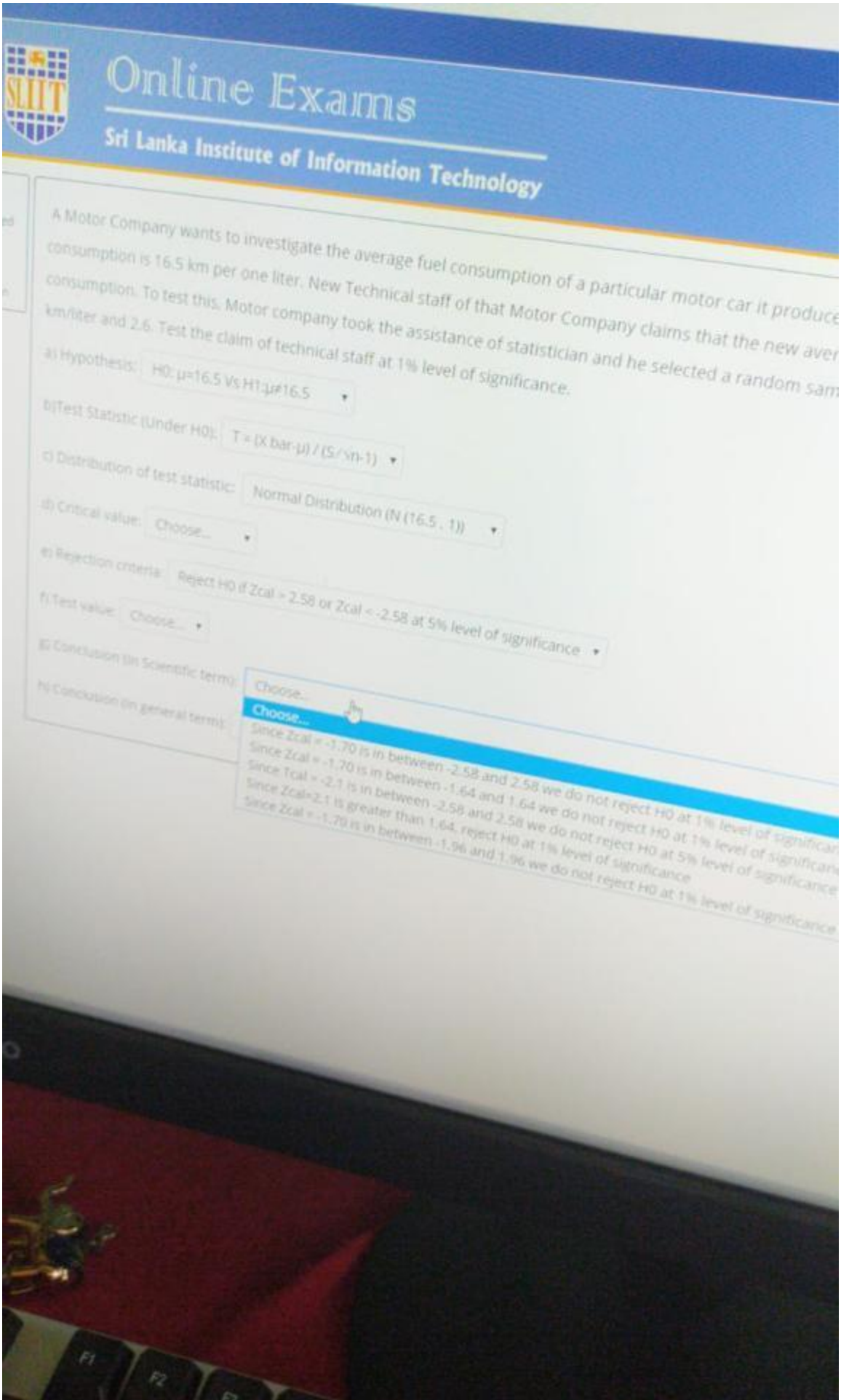
a) Lower Limit Equation : Choose...

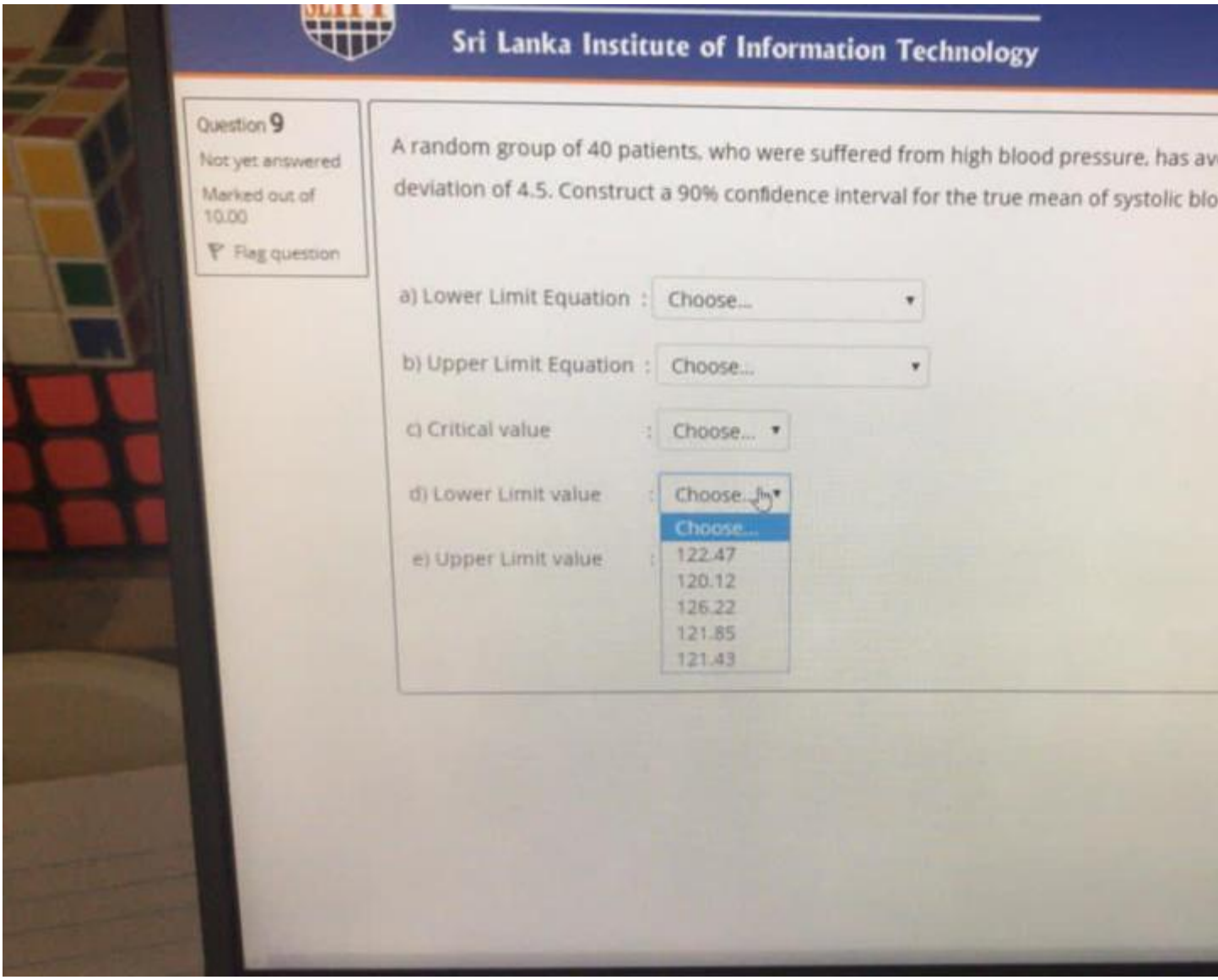
b) Upper Limit Equation : Choose...

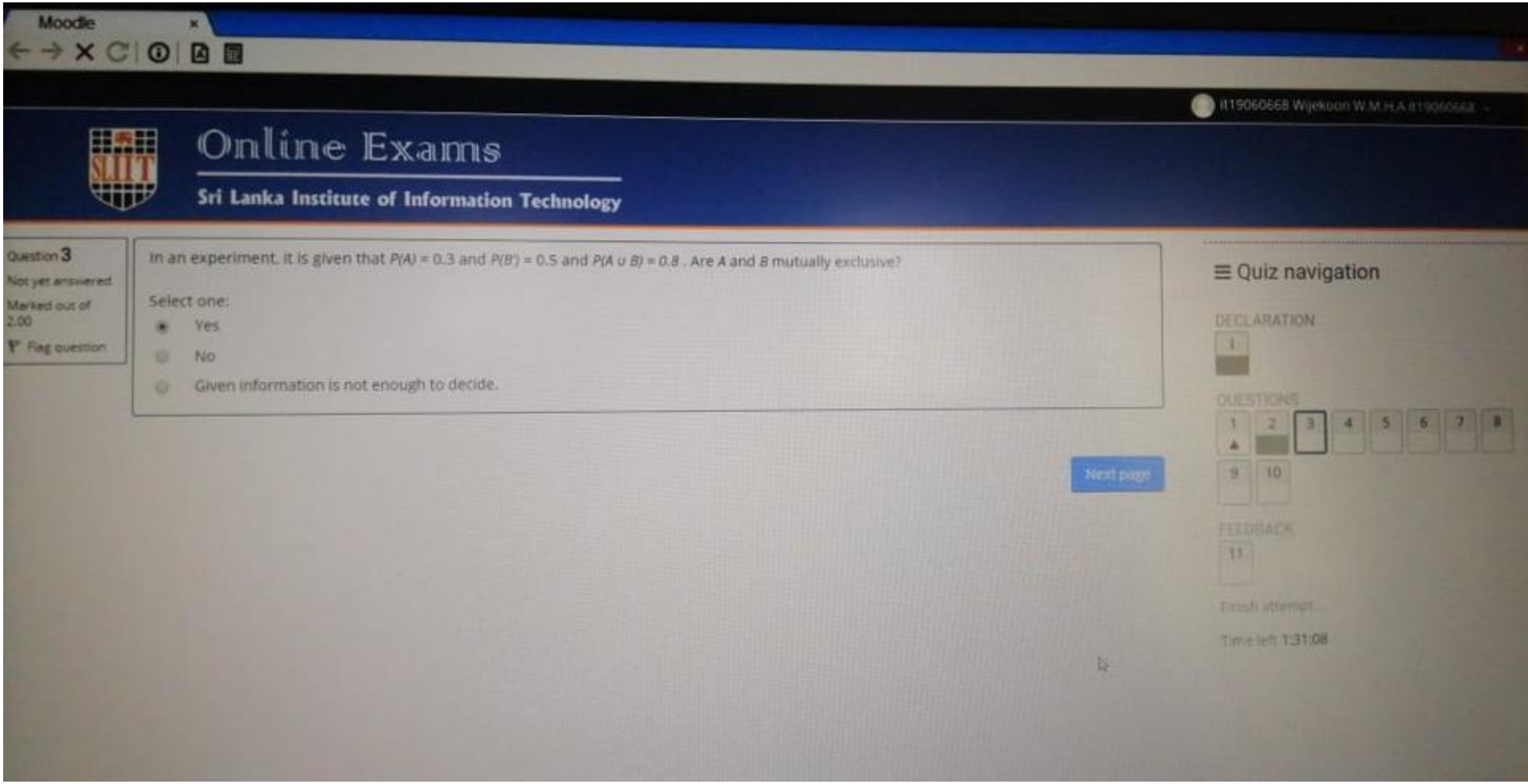
c) Critical value : Choose...

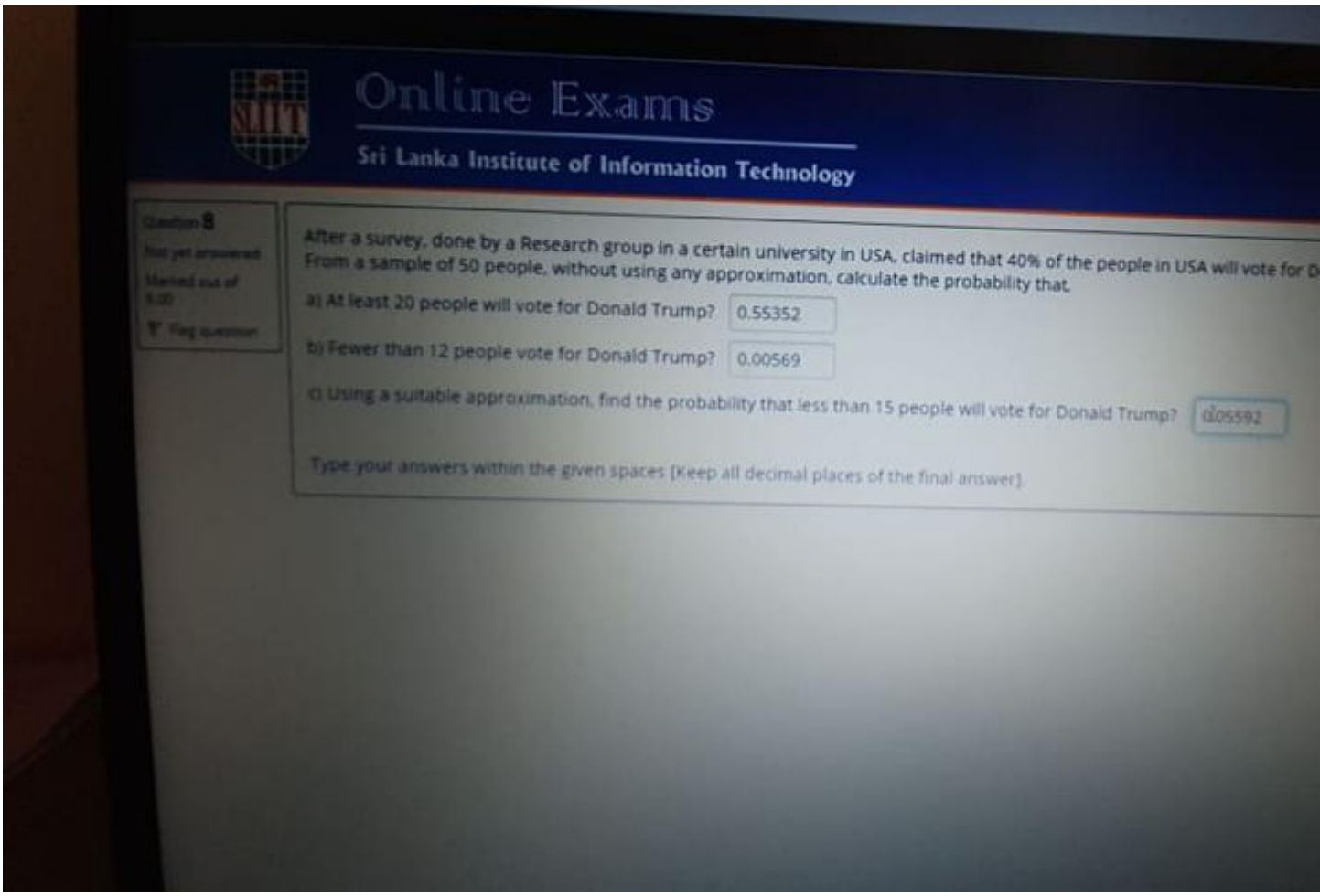
d) Lower Limit value : Choose...

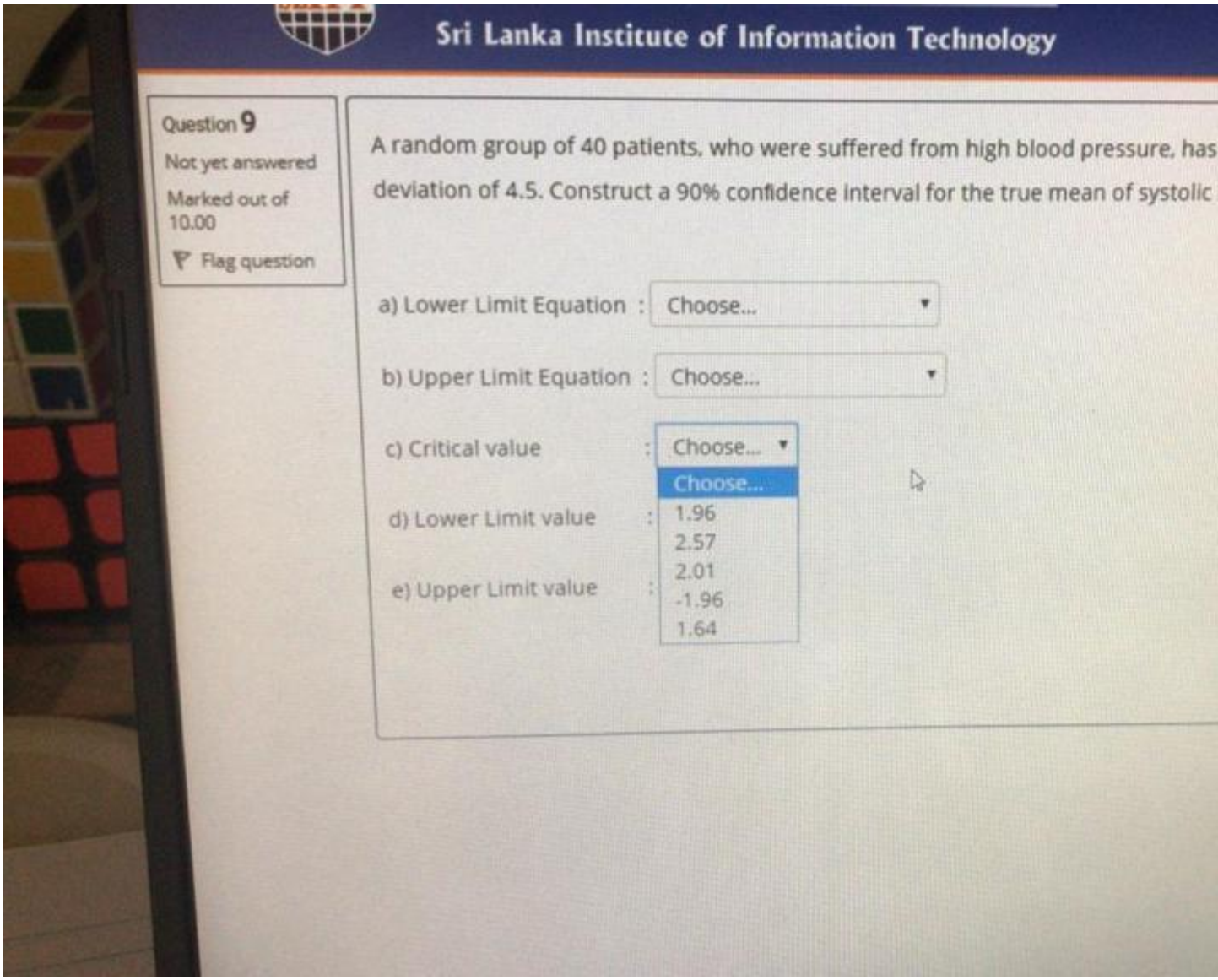
e) Upper Limit value : Choose...

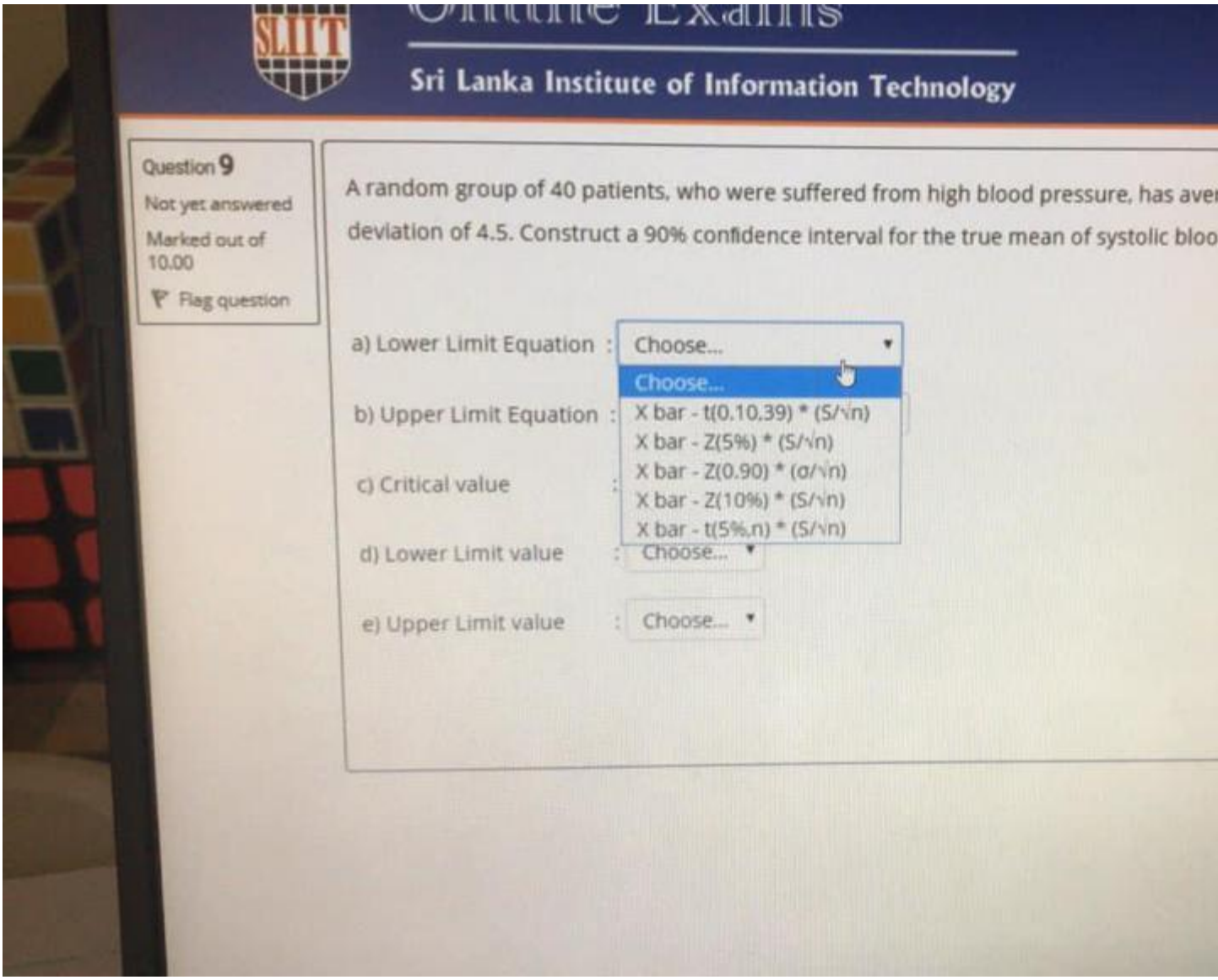

Online Exams
Sri Lanka Institute of Information Technology
A Motor Company wants to investigate the average fuel consumption of a particular motor car it produce
consumption is 16.5 km per one liter. New Technical staff of that Motor Company claims that the new aver
consumption. To test this. Motor company took the assistance of statistician and he selected a random sam
km/liter and 2.6. Test the claim of technical staff at 1% level of significance.
a) Hypothesis:
H0: μ=16.5 Vs H1:μ≠16.5
b)Test Statistic (Under H0):
T = (X bar-μ) / (S/√n-1)
c) Distribution of test statistic:
Normal Distribution (N (16.5 , 1))
d) Critical value:
Choose...
e) Rejection criteria:
Reject H0 if Zcal > 2.58 or Zcal < -2.58 at 5% level of significance
f) Test value:
Choose...
g) Conclusion (In Scientific term):
h) Conclusion (In general term):
Choose...
Choose...
Since Zcal = -1.70 is in between -2.58 and 2.58 we do not reject H0 at 1% level of significan
Since Zcal = -1.70 is in between -1.64 and 1.64 we do not reject H0 at 1% level of significan
Since Tcal = -2.1 is in between -2.58 and 2.58 we do not reject H0 at 5% level of significance
Since Zcal=2.1 is greater than 1.64, reject H0 at 1% level of significance
Since Zcal = -1.70 is in between -1.96 and 1.96 we do not reject H0 at 1% level of significance

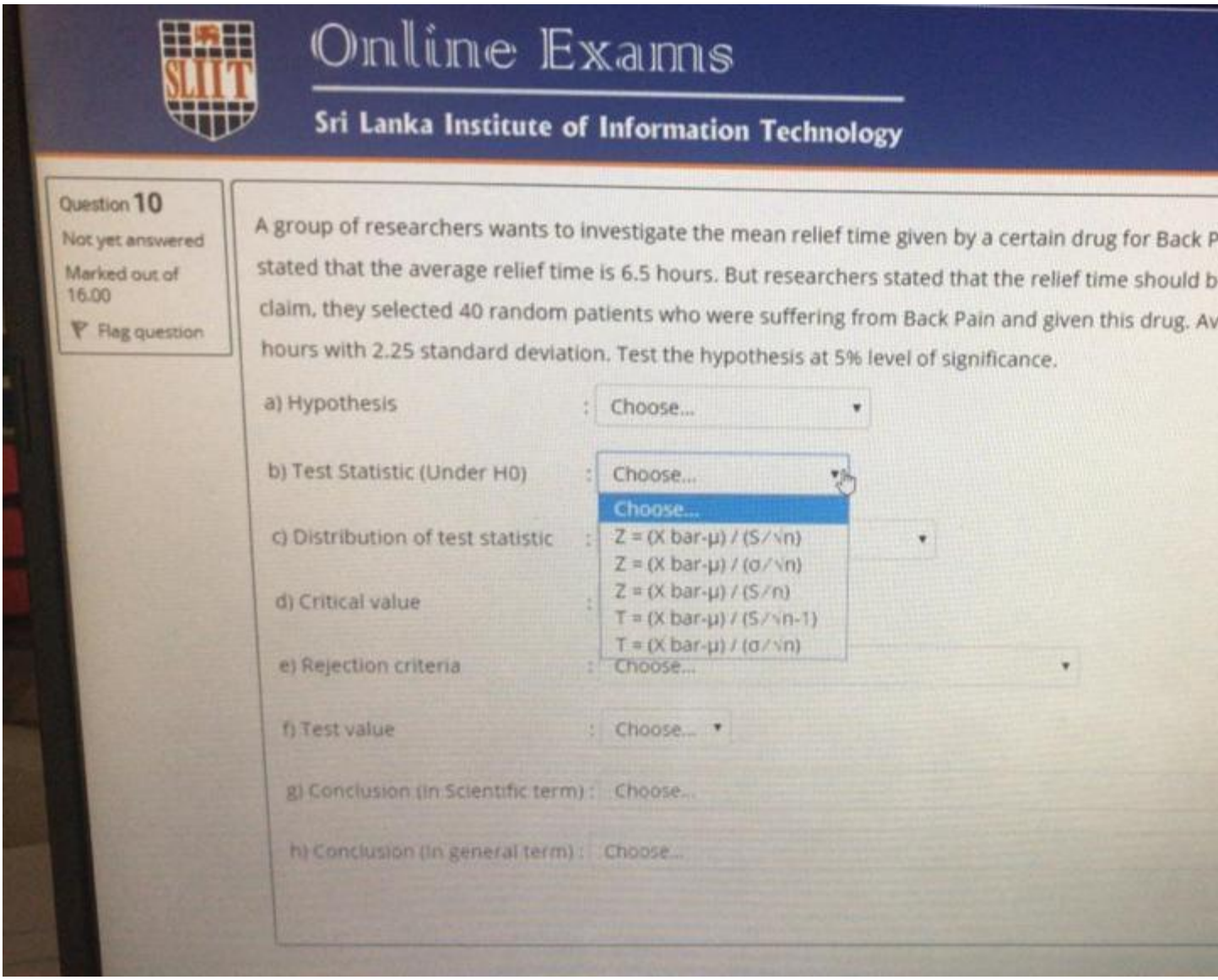

Sri Lanka Institute of Information Technology
Question 9
Not yet answered
Marked out of 10.00
Flag question
A random group of 40 patients, who were suffered from high blood pressure, has av
deviation of 4.5. Construct a 90% confidence interval for the true mean of systolic blo
a) Lower Limit Equation : Choose...
b) Upper Limit Equation : Choose...
c) Critical value : Choose...
d) Lower Limit value : Choose...
e) Upper Limit value :
Choose...
122.47
120.12
126.22
121.85
121.43

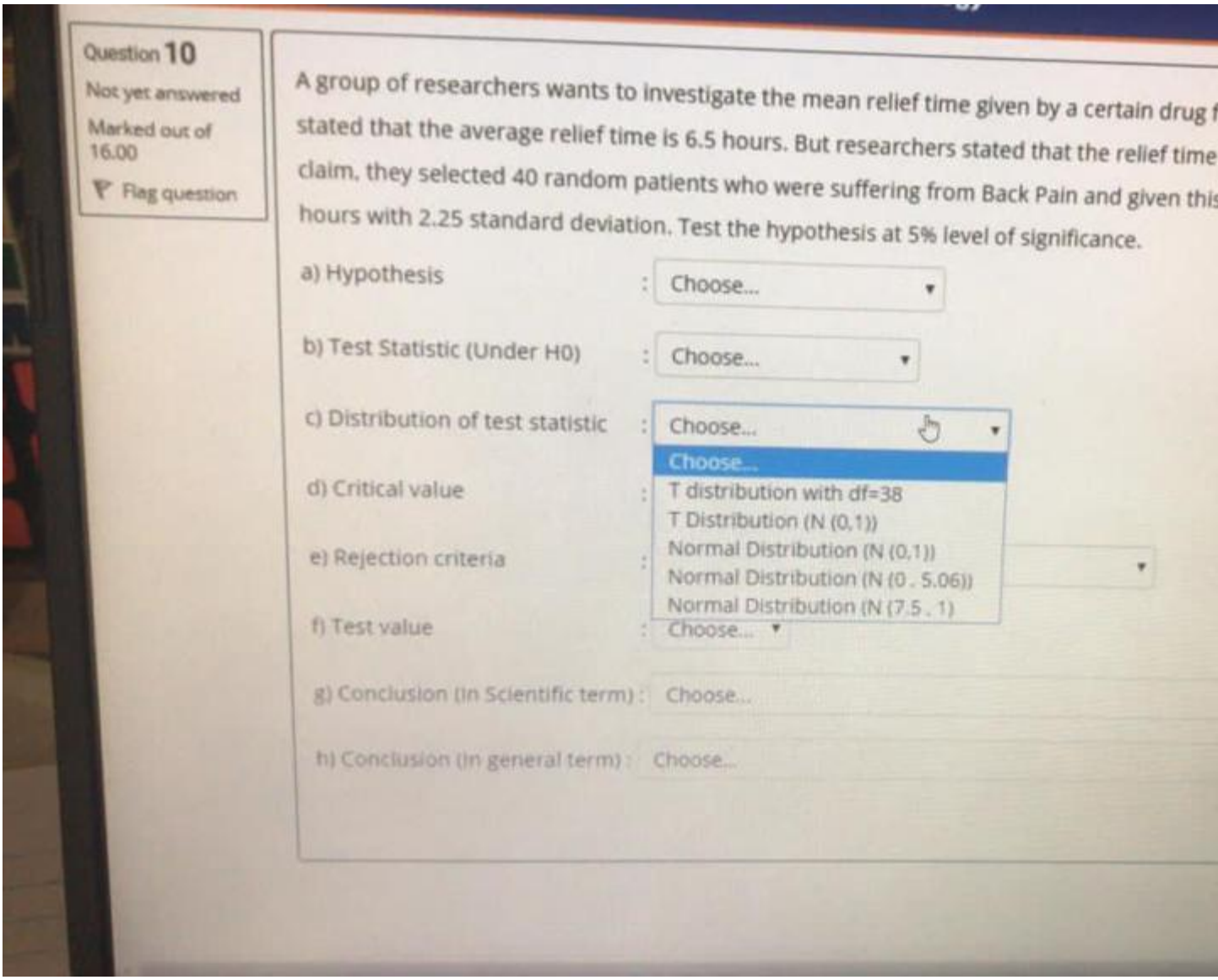

Moodle
it19060668 Wijekoon W.M.H.A it19060668
Online Exams
Sri Lanka Institute of Information Technology
Question 3
Not yet answered
Marked out of 2.00
Flag question
In an experiment, it is given that P(A) = 0.3 and P(B') = 0.5 and P(A ∪ B) = 0.8 . Are A and B mutually exclusive?
Select one:
Yes
No
Given information is not enough to decide.
Next page
Quiz navigation
DECLARATION
QUESTIONS
1 2 3 4 5 6 7 8
9 10
FEEDBACK
11
Finish attempt ...
Time left 1:31:08

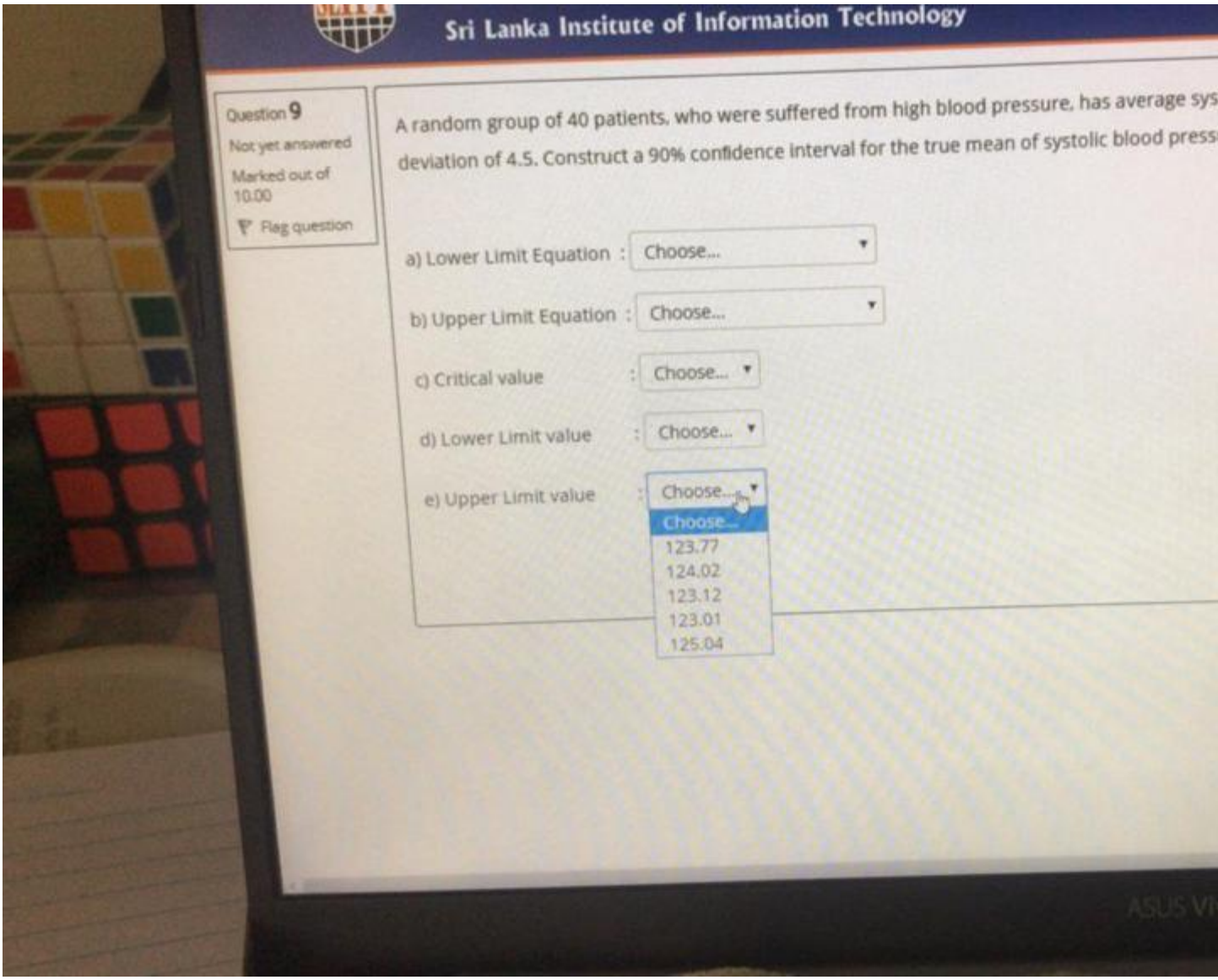

Online Exams
Sri Lanka Institute of Information Technology
Question 8
Not yet answered
Marked out of
Flag question
After a survey, done by a Research group in a certain university in USA, claimed that 40% of the people in USA will vote for D
From a sample of 50 people, without using any approximation, calculate the probability that,
a) At least 20 people will vote for Donald Trump? 0.55352
b) Fewer than 12 people vote for Donald Trump? 0.00569
c) Using a suitable approximation, find the probability that less than 15 people will vote for Donald Trump? 0.05592
Type your answers within the given spaces [Keep all decimal places of the final answer].


Sri Lanka Institute of Information Technology
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
deviation of 4.5. Construct a 90% confidence interval for the true mean of systolic
a) Lower Limit Equation : Choose...
b) Upper Limit Equation : Choose...
c) Critical value : Choose...
Choose...
1.96
2.57
2.01
-1.96
1.64
d) Lower Limit value :
e) Upper Limit value :


Online Exams
Sri Lanka Institute of Information Technology
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 aver
deviation of 4.5. Construct a 90% confidence interval for the true mean of systolic bloo
a) Lower Limit Equation : Choose...
Choose...
X bar - t(0.10,39) * (S/√n)
X bar - Z(5%) * (S/√n)
X bar - Z(0.90) * (σ/√n)
X bar - Z(10%) * (S/√n)
X bar - t(5%,n) * (S/√n)
b) Upper Limit Equation :
c) Critical value :
d) Lower Limit value : Choose...
e) Upper Limit value : 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 P
stated that the average relief time is 6.5 hours. But researchers stated that the relief time should b
claim, they selected 40 random patients who were suffering from Back Pain and given this drug. Av
hours with 2.25 standard deviation. Test the hypothesis at 5% level of significance.
a) Hypothesis : Choose...
b) Test Statistic (Under H0) : Choose...
Choose...
Z = (X bar-μ) / (S/√n)
Z = (X bar-μ) / (σ/√n)
Z = (X bar-μ) / (S/n)
T = (X bar-μ) / (S/√n-1)
T = (X bar-μ) / (σ/√n)
c) Distribution of test statistic :
d) Critical value :
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
Flag question
A group of researchers wants to investigate the mean relief time given by a certain drug f
stated that the average relief time is 6.5 hours. But researchers stated that the relief time
claim, they selected 40 random patients who were suffering from Back Pain and given this
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 . 5.06))
Normal Distribution (N (7.5 . 1)
d) Critical value :
e) Rejection criteria :
f) Test value : Choose...
g) Conclusion (In Scientific term) : Choose...
h) Conclusion (In general term) : Choose...


Sri Lanka Institute of Information Technology
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 sys
deviation of 4.5. Construct a 90% confidence interval for the true mean of systolic blood press
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

Online Exams

Sri Lanka Institute of Information Technology

A typist of a certain Book Publishing Company can type 7 pages per day. With

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

Type your answers within the given spaces [Keep all decimal places of the fin

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

ii. State the estimated regression equation. Estimated Arm Strength = 12.561+1.789 (Dynamic Li

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

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

v. Use the regression equation to predict dynamic lift if arm strength is 43.4 units. 17.2381 unit

g question

a) Find *k* value *(Round off to three decimal values)* : 0

b) Find the Expected value of X. *(Round off to three decimal values)* : 0

c)Find the variance of X (V(X)) : *(Round off to three decimal values)* : 0

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

(Type the correct 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 wee
company. He has collected data for 12 weeks and weekly advertising expenditure ($) and week
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 : 1
2. B : 10
3. C : 28893.5 (Keep all the decimal places in the answer)
4. D : 37591.7 (Keep all the decimal places in the answer)
5. E : 869.82 (Keep all the decimal places in the answer)
6. F : 29763.32
7. G : 33.2178 (Round off the answer up to the fourth decimal point)

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

Online Exams

Sri Lanka Institute of Information Technology

on 1
t answered
d out of
t question

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 : -0.00062 (Keep all the decimal places in the answer)
3. At which content (grams), 78% of jars of peanut butter have more than that content? grams (Keep the answer with two decimal points)

(Type your answers within the given spaces)

Next page

swered

t of

estion

A retail merchant in USA has conducted a survey to determine the relatio
weeks and weekly advertising expenditure ($) and weekly sales ($) have r

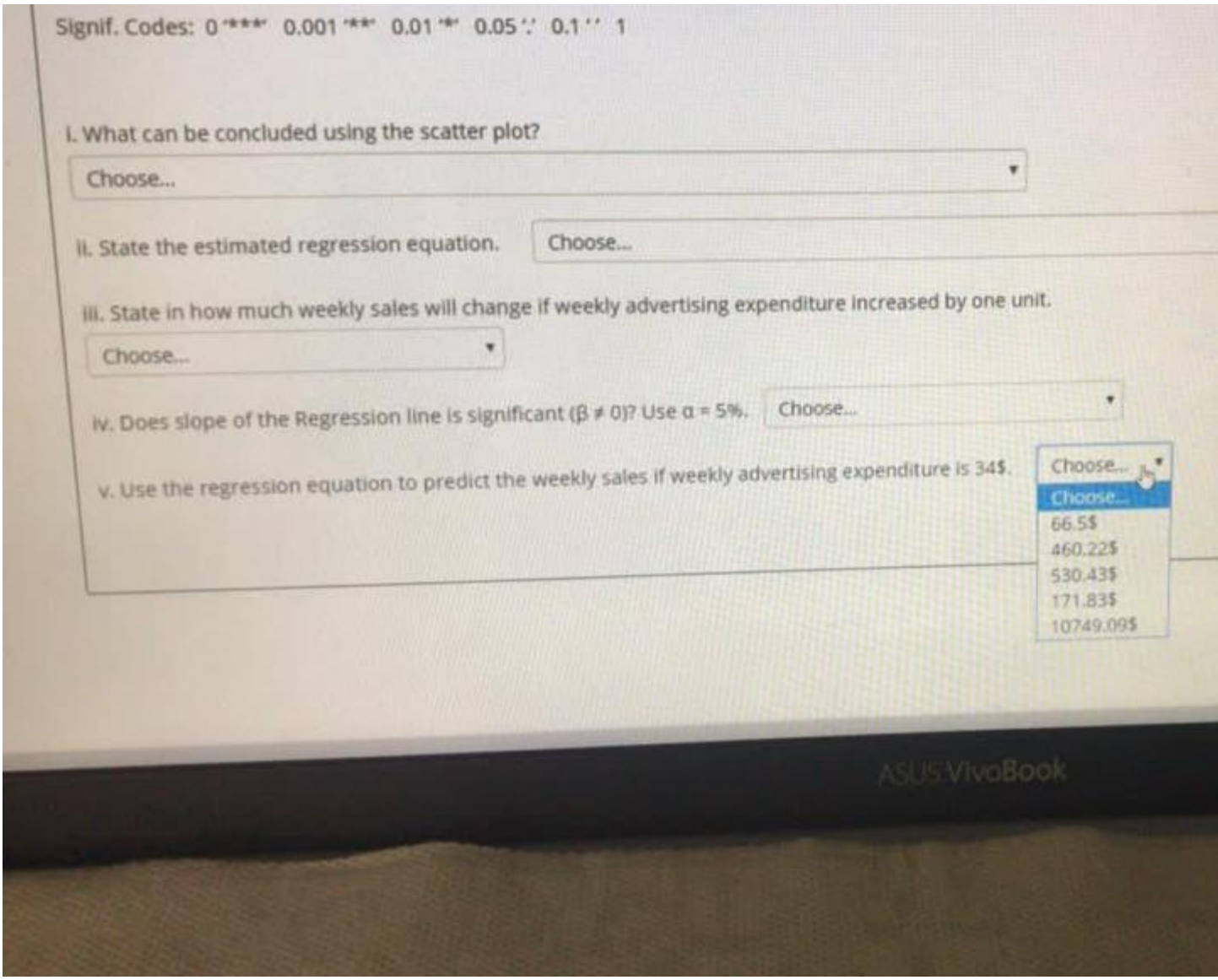
$\sum x = 405$ $\sum y = 5510$ $\sum xy = 192775$ $\sum (x^2) = 15275$ $\sum$

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

Calculate Pearson's correlation coefficient between the two variables (Giv

(Type your answer within the given space)

Answer: -1.0027


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 (β ≠ 0)? Use α = 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$
ASUS VivoBook

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):

11
83
76
109
123

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

8. Conclusion (In General term):

Choose...

Online Exams

Sri Lanka Institute of Information Technology

ion 5
et answered
ed out of
g question

A manufacturer of PVC pipes claims that inside diameters of PVC pipes produced by his company are appro
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

2. Probability that diameter of a PVC pipe is in between 11 inches and 14 inches : [ ] (Keep all

3. At which diameter, 43% of PVC pipes have less than that diameter? [ ] inches (Keep the answ

(Type your answers within the given spaces)

2. Distribution of test statistic: Choose...

3. Significance level:

4. Critical value: Choose...

5. Rejection criteria: Choose...

Choose...
Reject H0 if X^2 cal < 18.0261 at 1% level of significance
Reject H0 if X^2 Cal > 9.48773 at 5% level of significance
Reject H0 if X^2 cal > 9.48773 at 0.5% level of significanc
Reject H0 if t cal > 4.604 at 2.5% level of significance
Reject H0 if t cal < 2.776 at 10% level of significance

6. Test value (Round of

7. Conclusion (In Scien

8. Conclusion (In General term):

Choose...

			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. Rejection criteria: Choose...

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

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

8. Conclusion (In General term):
   Choose...

wered
t of
estion

The following table shows data for grades usually achieved in school and how often the respondent puts o
sun for more than 1 hour. Respondents are 12th-grade participants in the 2003 Youth Risk Behavior Surve
sponsored by the U.S. Centers for Disease Control and Prevention, is a national survey of high school stude
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. Rejection criteria: Choose

Online Exams

Sri Lanka Institute of Information Technology

A researcher reports that mice will live an average of 45 months when their diets are sharply restricted an proteins. Assuming that the lifetimes of such mice are normally distributed with a standard deviation of 7. a given mouse will live.

1. More than 30 months : 0.97982 (Keep all the decimal places in the answer)
2. Between 38 and 47 months : 0.43789 (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? 38.8 to the nearest integer)

Type your answers within the given spaces)

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 F's	85	15	3	103
Total	1975	548	335	2858

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
2. H0: Sunscreen usage and grade obtained by respondents are dependent Vs. H1: Sunscreen usage and grade obtained by respondents are indepe
H0: There is an association in between sunscreen usage and grade obtained by respondents Vs. H1: There is no association in between sunscreen
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

4. Critical value: Choose...

5. Rejection criteria: Choose...

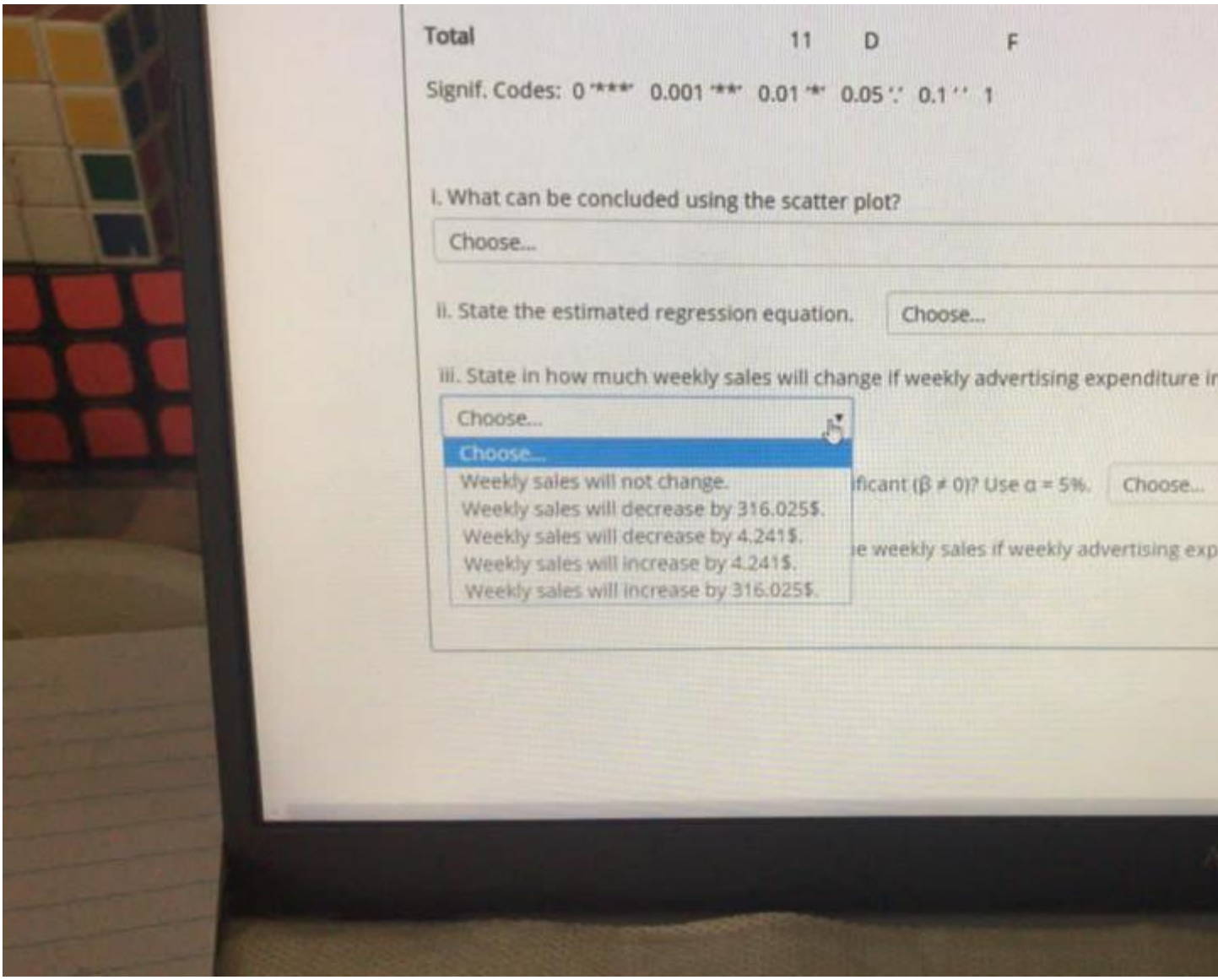
6. Test value (Round off to the nearest integer):

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

8. Conclusion (In General term):

Choose...

Next page


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 in
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 (β ≠ 0)? Use α = 5%.
Choose...
e weekly sales if weekly advertising exp

Online Exams

Sri Lanka Institute of Information Technology

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
with an average of 35 minutes and standard deviation of 4.7 minutes. If a random sample of 20 high school senior
minutes to complete this exam, test the hypothesis that average completion time (μ) has decreased, at the 0.05 lev

a) Hypothesis : H0: μ ≥ 35 Vs H1: μ < 35

b) Test Statistic (Under H0) : Z = (X bar- μ) / (σ / √n)

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

d) Critical value : 1.96

e) Rejection criteria : Reject H0 if Z cal < -1.96 at 5% level of significance

f) Test value : -11.04

g) Conclusion (in Scientific term) : Since Z cal = -11.04 is less than -1.64, reject H0 at 5% level of significance

h) Conclusion (in general term) :

Therefore there is enough evidence to suggest that average completion time has decreased

	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. Rejection criteria: Choose...

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

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

8. Conclusion (In General term):

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

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 advert

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$. 4

Online Exams

Sri Lanka Institute of Information Technology

3
answered
out of
question

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

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

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

(Type your answer within the given space)

Answer:

on 6

et answered

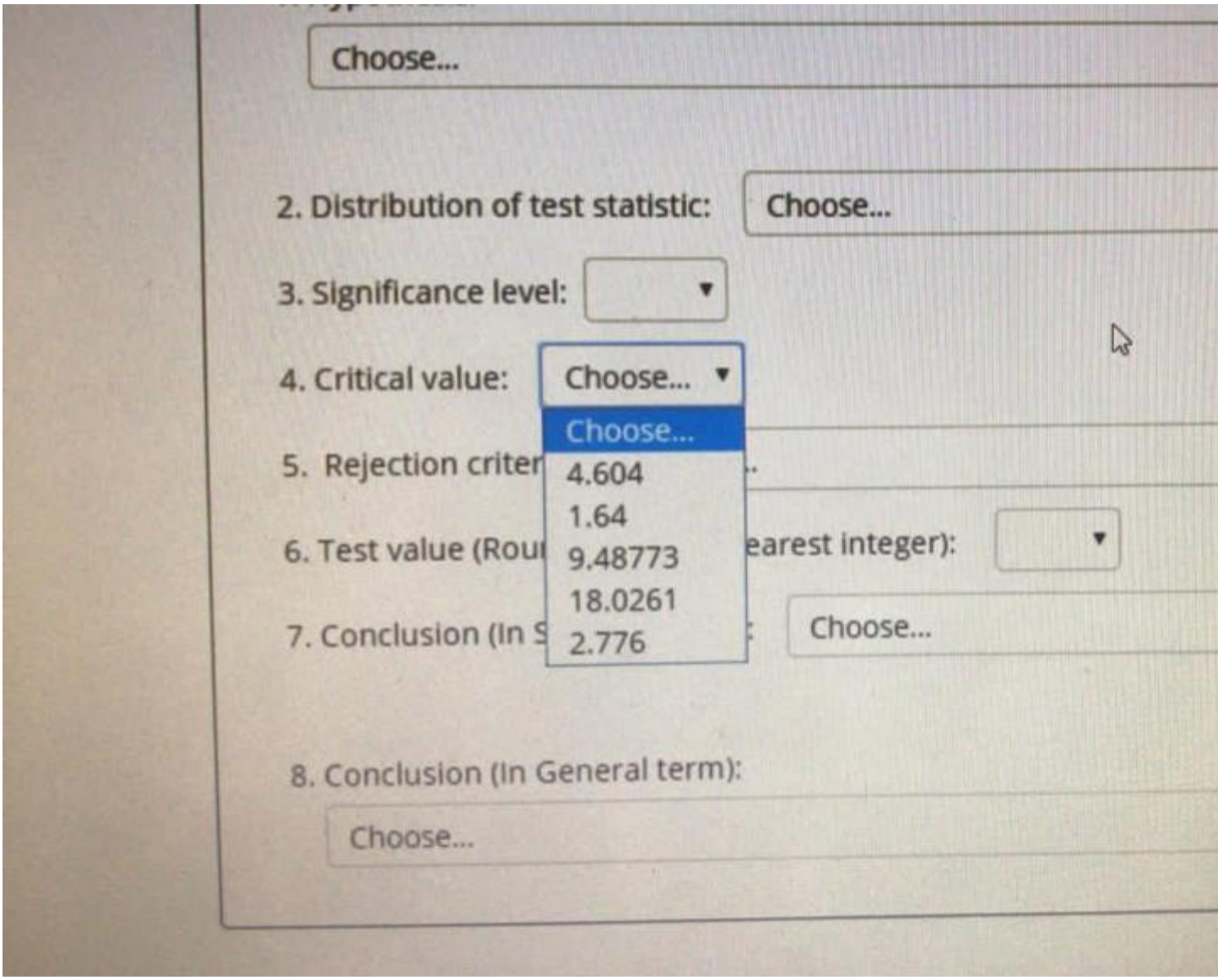
ed out of

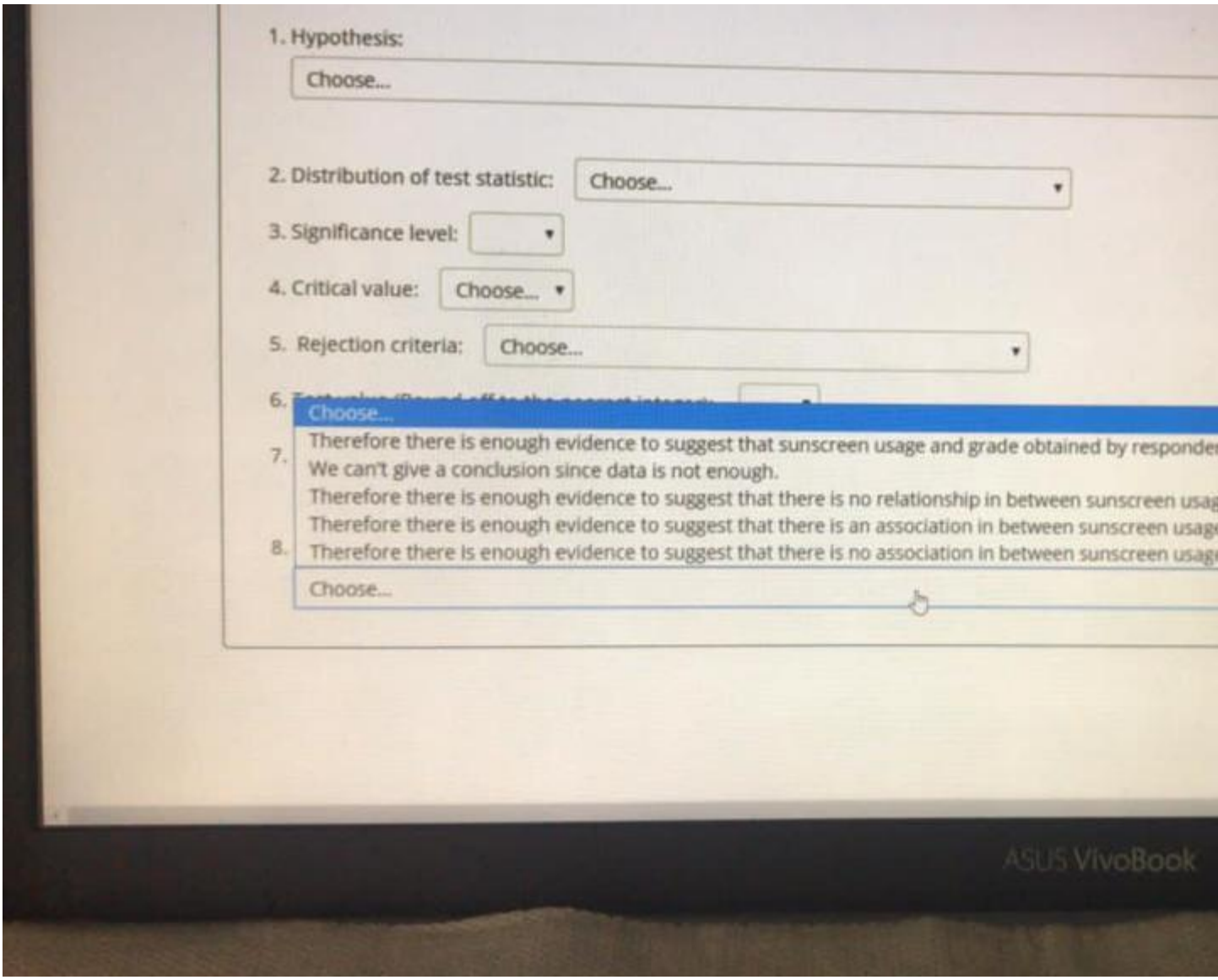
lag question

A retail merchant in USA has conducted a survey to determine the relationship in between weekly ad company. He has collected data for 12 weeks and weekly advertising expenditure ($) and weekly sale Figure below displays the scatter plot for the data.

R outputs of the regression model are shown below.

Regression Model


Choose...
2. Distribution of test statistic:
Choose...
3. Significance level:
4. Critical value:
Choose...
Choose...
4.604
1.64
9.48773
18.0261
2.776
5. Rejection criter
6. Test value (Rou
earest integer):
7. Conclusion (In S
Choose...
8. Conclusion (In General term):
Choose...


1. Hypothesis:
Choose...
2. Distribution of test statistic:
Choose...
3. Significance level:
4. Critical value:
Choose...
5. Rejection criteria:
Choose...
6.
Choose...
7.
Therefore there is enough evidence to suggest that sunscreen usage and grade obtained by responde
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 usag
Therefore there is enough evidence to suggest that there is an association in between sunscreen usag
8.
Therefore there is enough evidence to suggest that there is no association in between sunscreen usag
Choose...
ASUS VivoBook

Online Exams

Sri Lanka Institute of Information Technology

ion 8
et answered
ed out of
ag question

After a survey, done by a Research group in a certain university in USA, claimed that 40% of the people in
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].

Online Exams

Sri Lanka Institute of Information Technology

on 4
et answered
ed out of
eg question

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

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

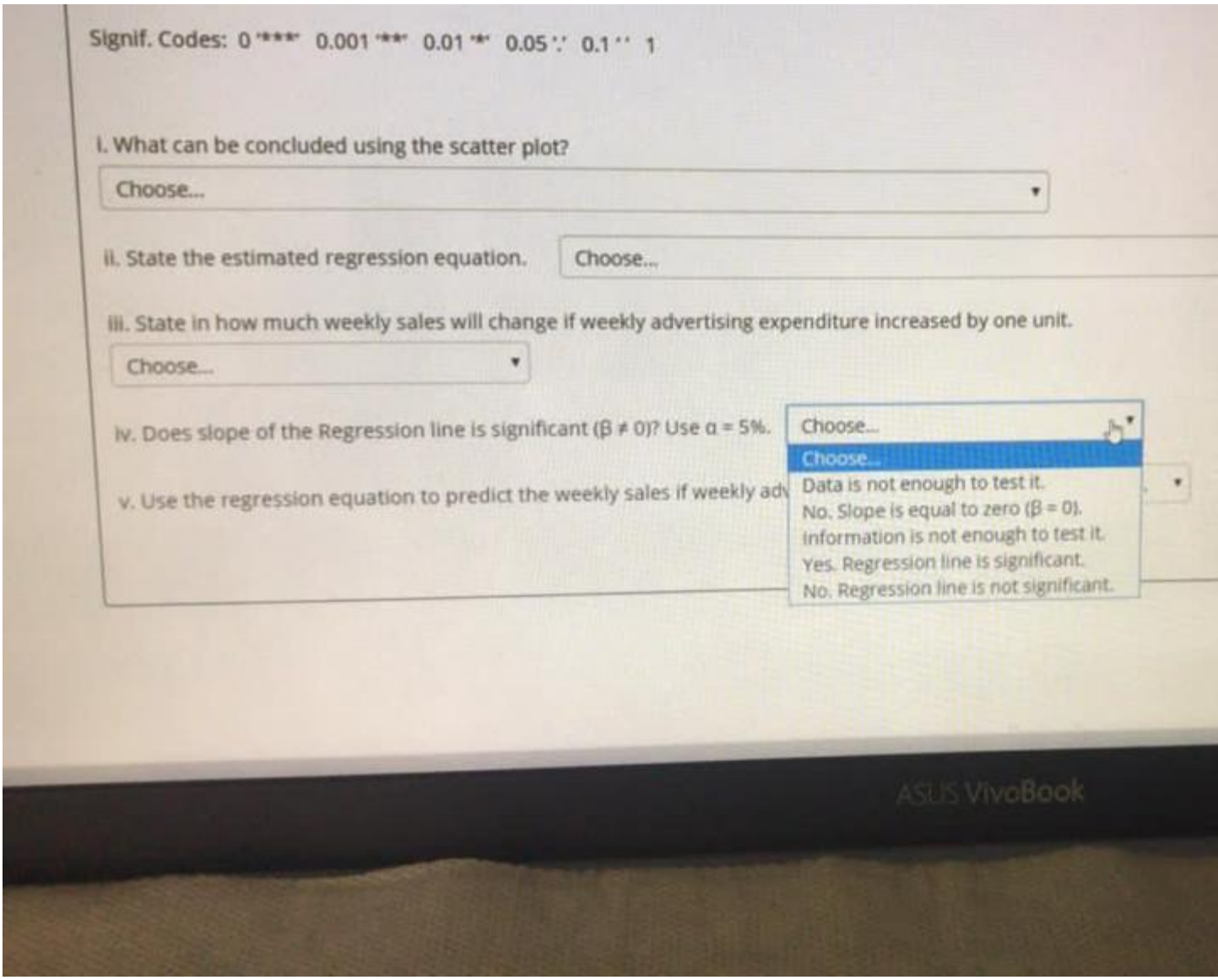
a) Find k value *(Round off to three decimal values)* :

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)


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 (β ≠ 0)? Use α = 5%.
Choose...
Choose...
Data is not enough to test it.
No. Slope is equal to zero (β = 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 adv
ASUS VivoBook

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...

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 (Dai

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 signifi

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

Online Exams

Sri Lanka Institute of Information Technology

1

nswered

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 r

Select one:

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

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Weekly advertising expenditure	A	C	28893.5	G	0.00018
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 expendit
There is a negative linear relationship in between weekly sales and weekly advertising expendit

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

Online Exams

Sri Lanka Institute of Information Technology

Question 1

Not yet answered

Marked out of 12.00

Flag question

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

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

a) Find k value *(Round off to three decimal values)* : 0.75

b) Find the expected value (E(X)) . *(Round off to 3 decimal values)* : .18

c) Find variance of X *(V(X))*. *(Round off to three decimal values)* : 0.165

d) Find $F_X(0.5)$. *(Round off to three decimal values)* : 0.563

(Type the correct answers within the given spaces)

g question

a) Find *k* value *(Round off to three decimal values)* : 0

b) Find the Expected value of X. *(Round off to three decimal values)* : 0

c)Find the variance of X (V(X)) : *(Round off to three decimal values)* : 0

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

(Type the correct answers within the given spaces)

Online Exams

Sri Lanka Institute of Information Technology

A researcher reports that mice will live an average of 45 months when their diets are sharp
with vitamins and proteins. Assuming that the lifetimes of such mice are normally distribut
7.3 months, find the probability that a given mouse will live,

1. More than 30 months : 0.98 (Keep all the decimal places in the answer)
2. Between 38 and 47 months : 0.439 (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

   (Give your answer to the nearest integer)

(Type your answers within the given spaces)

Regression Model

Coefficients

Intercept	Weekly Advertising Expenditure
316.025	4.241

Analysis of Variance

Response: Weekly Sales ($)

	Df	Sum Sq	Mean Sq	F value
Weekly advertising expenditure	A	C	28893.5	G
Residuals	B	8698.2	E	
Total	11	D	F	

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

stion 7

t yet answered

arked out of
00

Flag question

A retail merchant in USA has conducted a survey to determine the relationship in between weekly company. He has collected data for 12 weeks and weekly advertising expenditure ($) and weekly s 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')

Weekly advertising expenditure	A	C	28895.5	G
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

Choose...

iv. Does slope of the Regression line is significa

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

Choose...

Choose...

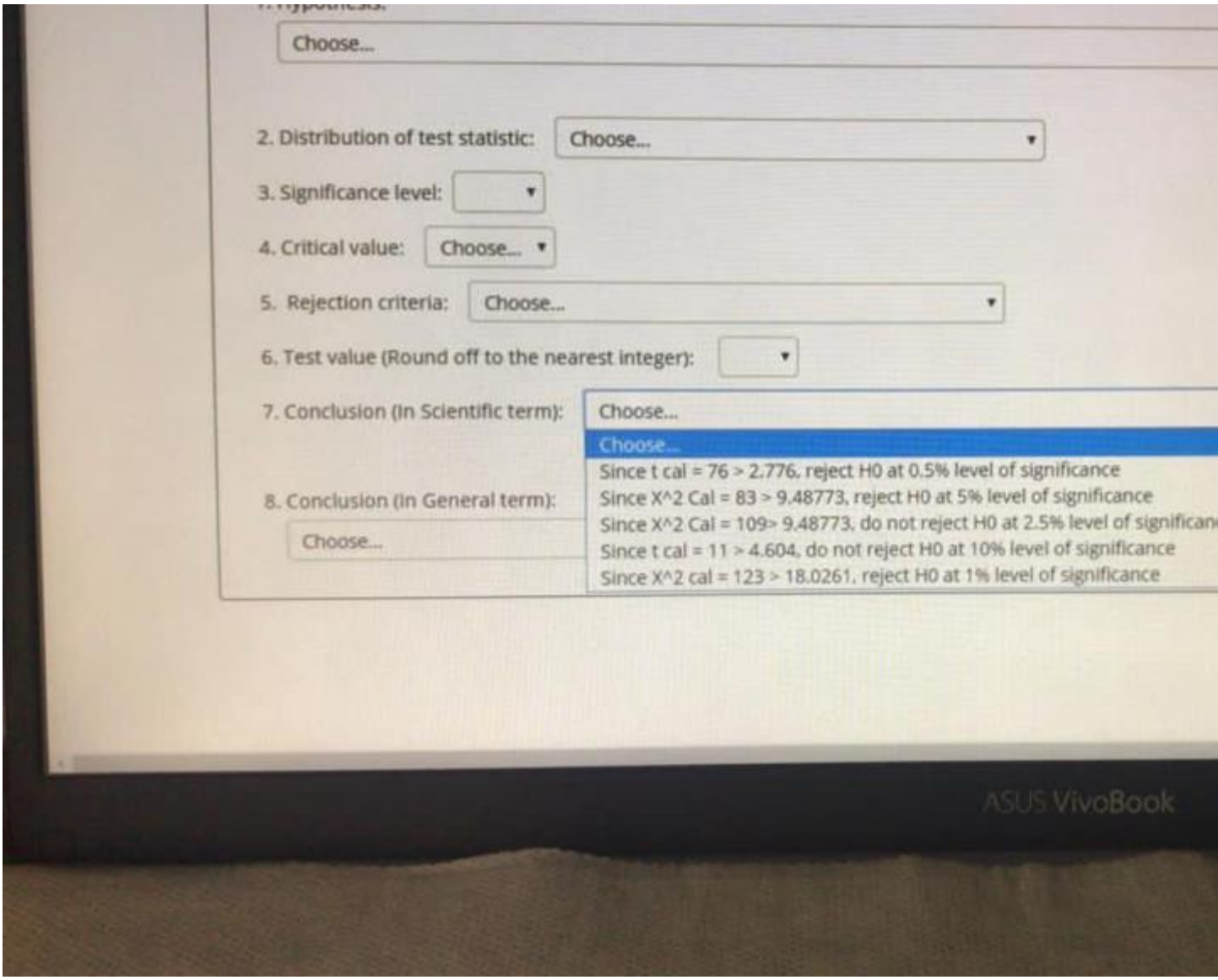
Estimated Weekly sales = 316.025 - 4.241 (Weekly adv

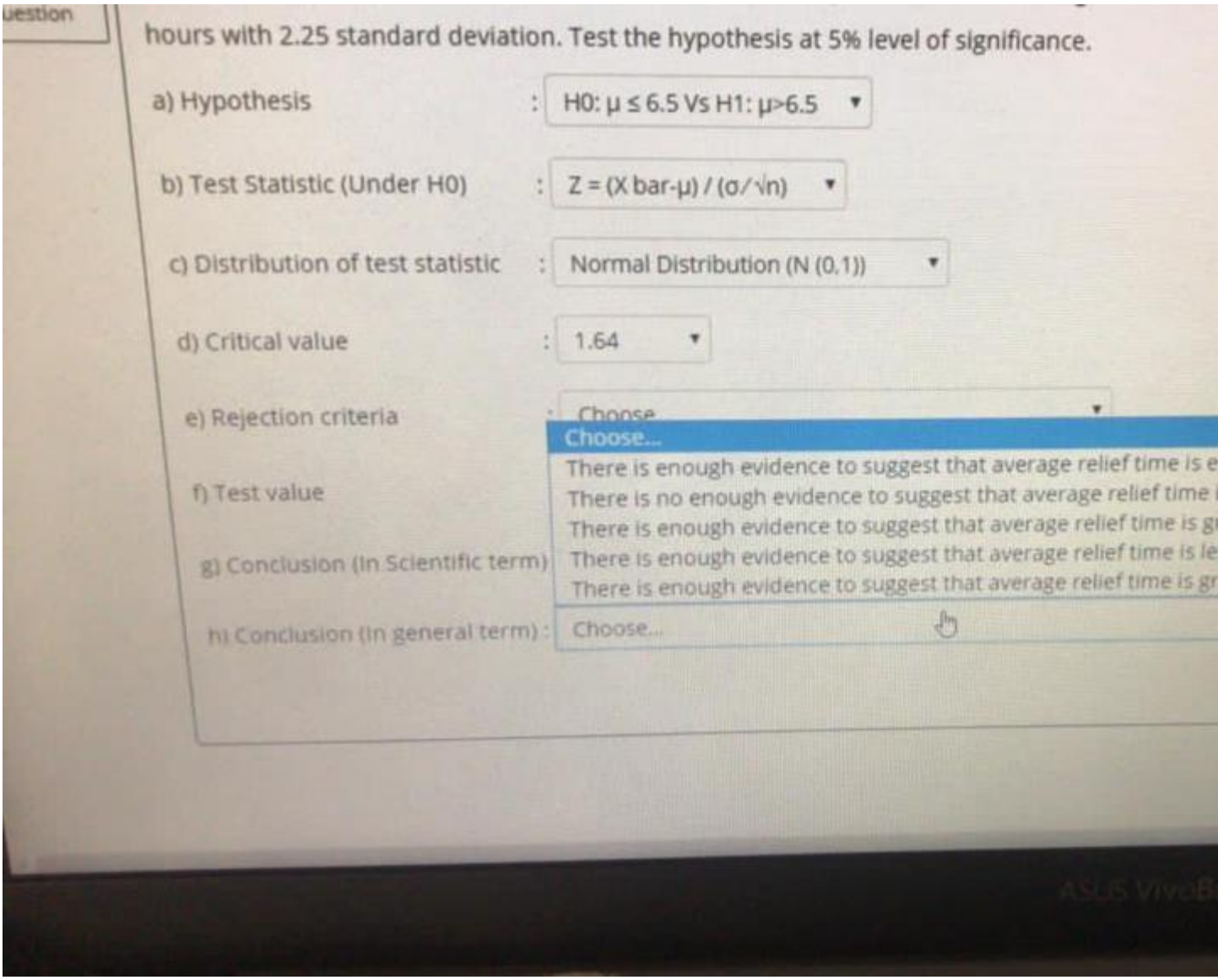
Estimated Weekly sales = 4.241 + 316.025 (Weekly adv

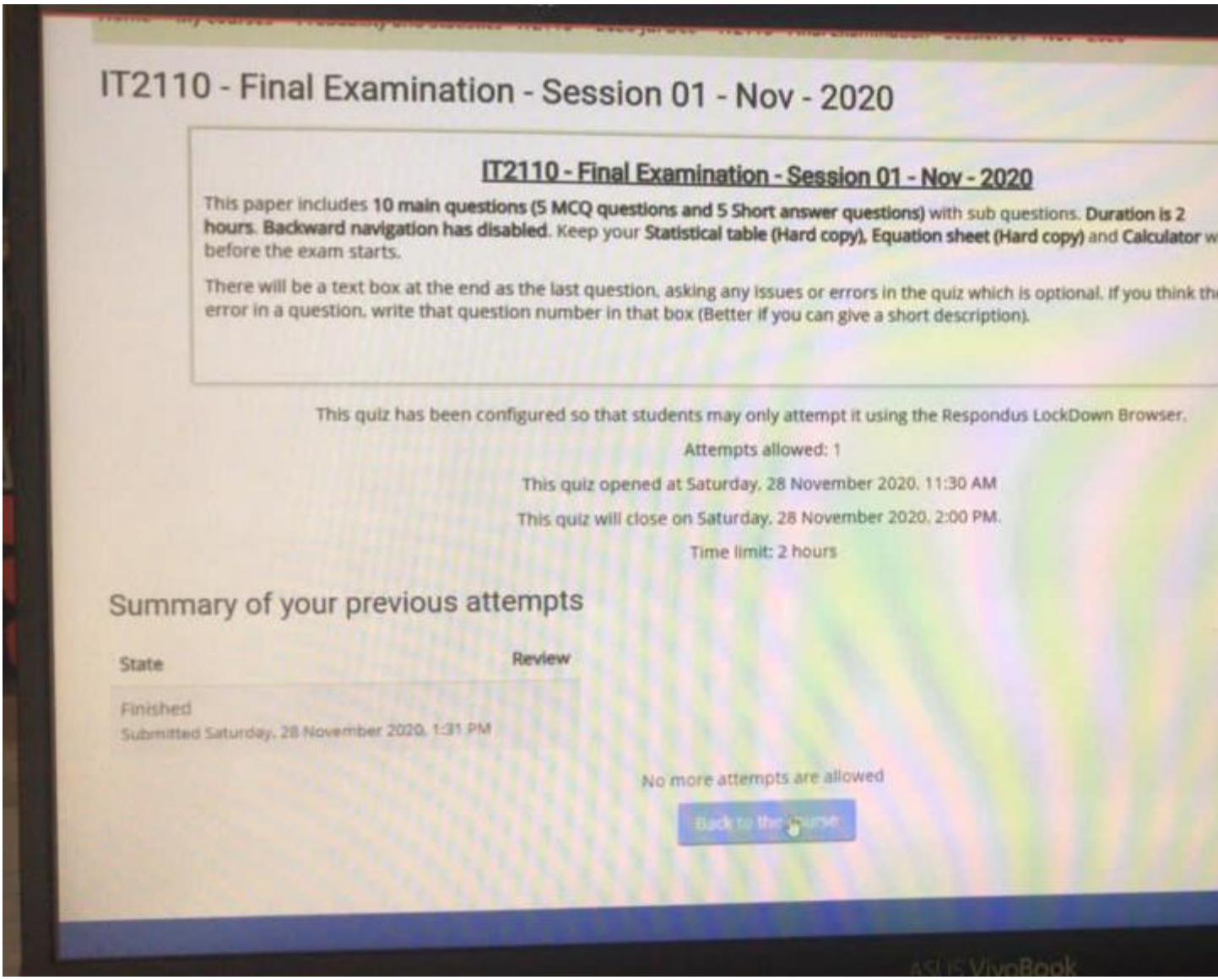
Estimated Weekly advertising expenditure = 4.241 + 3

Estimated Weekly advertising expenditure = 316.025 +

Estimated Weekly sales = 316.025 + 4.241 (Weekly adv


Choose...
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...
Choose...
Since t cal = 76 > 2.776, reject H0 at 0.5% level of significance
Since X^2 Cal = 83 > 9.48773, reject H0 at 5% level of significance
Since X^2 Cal = 109> 9.48773, do not reject H0 at 2.5% level of significan
Since t cal = 11 > 4.604, do not reject H0 at 10% level of significance
Since X^2 cal = 123 > 18.0261, reject H0 at 1% level of significance
8. Conclusion (In General term):
Choose...
ASUS VivoBook


uestion
hours with 2.25 standard deviation. Test the hypothesis at 5% level of significance.
a) Hypothesis : H0: μ ≤ 6.5 Vs H1: μ>6.5
b) Test Statistic (Under H0) : Z = (X bar-μ) / (σ/√n)
c) Distribution of test statistic : Normal Distribution (N (0,1))
d) Critical value : 1.64
e) Rejection criteria : Choose...
f) Test value
g) Conclusion (In Scientific term)
h) Conclusion (In general term) : Choose...
Choose...
There is enough evidence to suggest that average relief time is e
There is no enough evidence to suggest that average relief time
There is enough evidence to suggest that average relief time is g
There is enough evidence to suggest that average relief time is le
There is enough evidence to suggest that average relief time is gr


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 w
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 th
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

Online Exams

Sri Lanka Institute of Information Technology

uestion 2

lot yet answered

larked out of 2.00

Flag question

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

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

a) Find *k* value *(Round off your answer to three decimal values)* : -0.15

b) Find Expected Value *(Round off your answer to three decimal values)* : 0.00

c) Find Variance *(Round off your answer to three decimal values)* : 0.48

d) Find $F_X(1.2)$ *(Round off your answer to three decimal values)* : 0.9536

(Type the correct answers within the given spaces)

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 year and average number of persons

ii. State the estimated regression equation. Estimated Year = 44.39213 - 0.02095 (A

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

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, Regressi

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

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 inde

Select one:

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

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

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

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

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 U
2000 are shown in the following table. (These data are in the file perhouse on the compa

Year	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	197
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

To examine the relationship between the year and average number of persons per hous

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

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

Calculate Pearson's correlation coefficient between the two variables (Give your answer

(Type your answer within the given space)

Answer: -0.9919

Online Exams

Lanka Institute of Information Technology

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

ability that life time of a truck tire is at least 60000 miles : (Keep all the d

ability that life time of a truck tire is 45000 to 58900 miles : (Keep all t

is the life time (in miles) where 38% of truck tires took less than this life time?

er)

answers within the given spaces)

Online Exams

Sri Lanka Institute of Information Technology

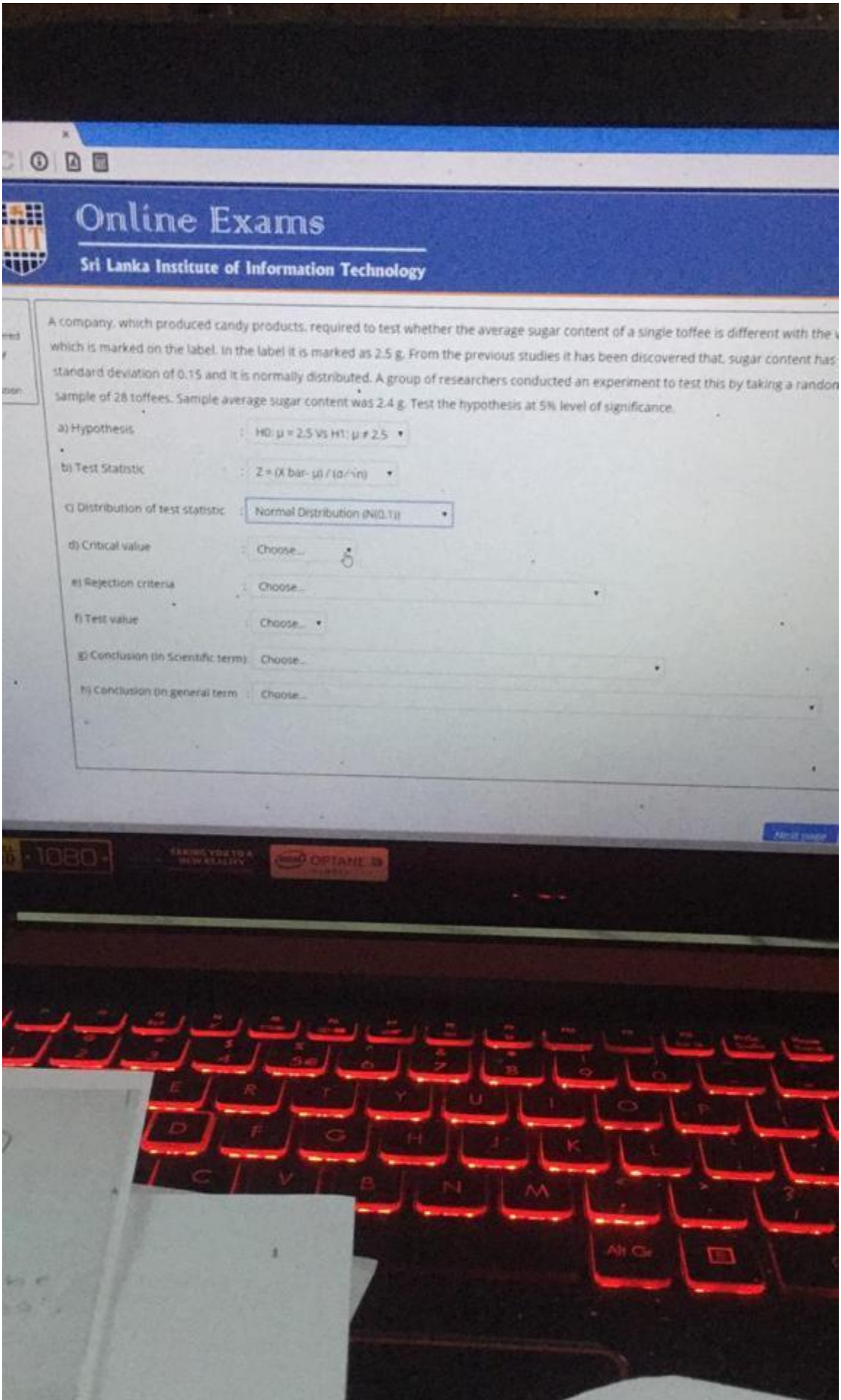
A Manager of a certain super market is concerning about the number of customers arrive within the f
morning. On average 9 customers are coming within the first hour. Without using any approximation,

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

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


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
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 : H0: μ = 2.5 Vs H1: μ ≠ 2.5
b) Test Statistic : Z = (X bar- μ) / (σ/√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 researcher is interested in finding whether there is any relationship in between measured in degrees centigrade (^{0}C). He used a sample size of 10 to study this re

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 : 1
2. B : 8
3. C : 9
4. D : 0.0664 (Keep all the decimal places in the answer)
5. E : 0.72476 (Keep all the decimal places in the answer)
6. F : 0.65836 (Keep all the decimal places in the answer)
7. G : 79.3205 (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
which is marked on the label. In the label it is marked as 2.5 g. From the previous studies it has be
standard deviation of 0.15 and it is normally distributed. A group of researchers conducted an exp
sample of 28 toffees. Sample average sugar content was 2.4 g. Test the hypothesis at 5% level of sig

a) Hypothesis : Choose...

b) Test Statistic : Choose...

c) Distribution of test statistic : Choose...

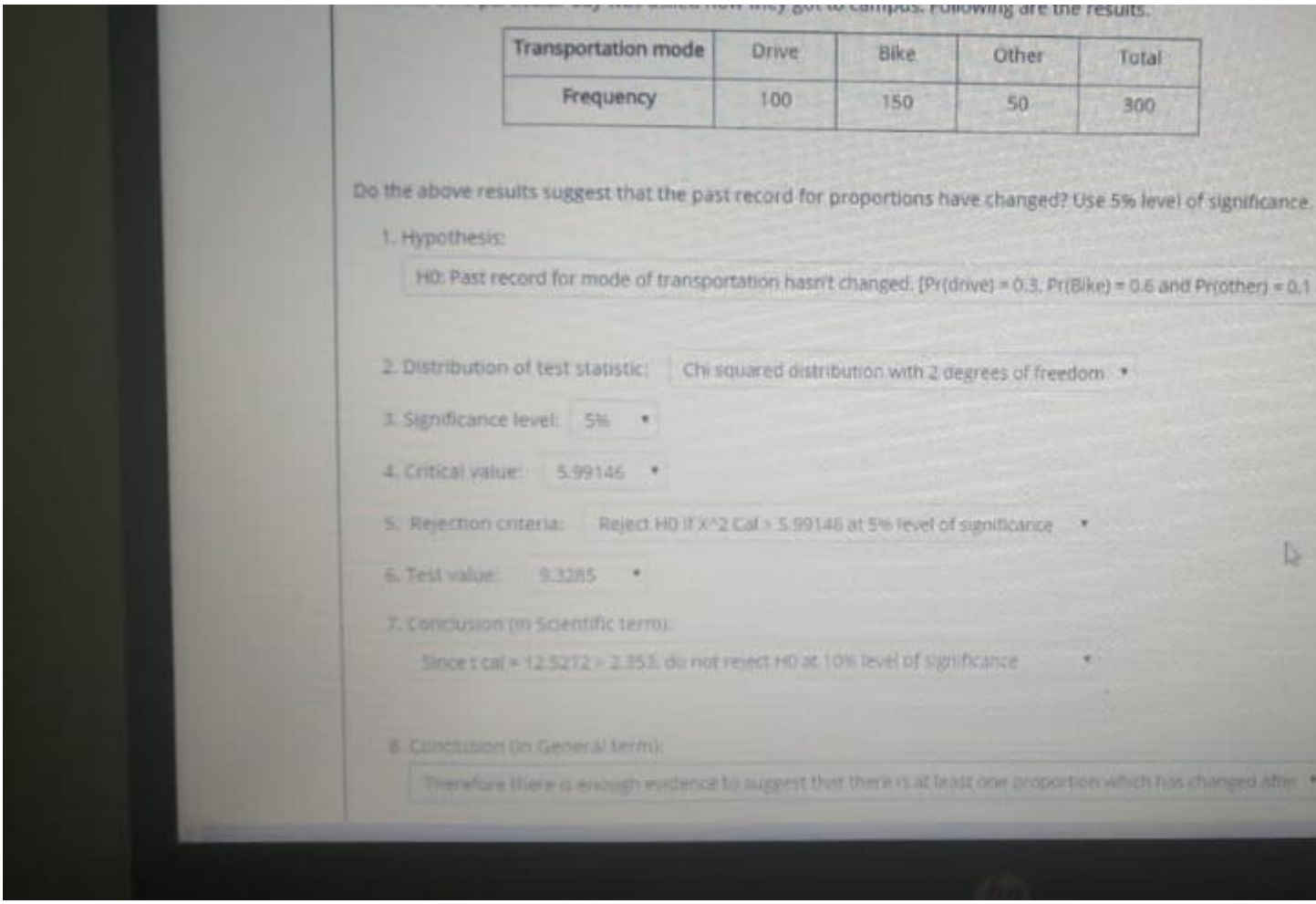
d) Critical value : Choose...

e) Rejection criteria : Choose...

f) Test value : Choose...

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

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



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:

H0: 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 H0 if X^2 Cal > 5.99146 at 5% level of significance

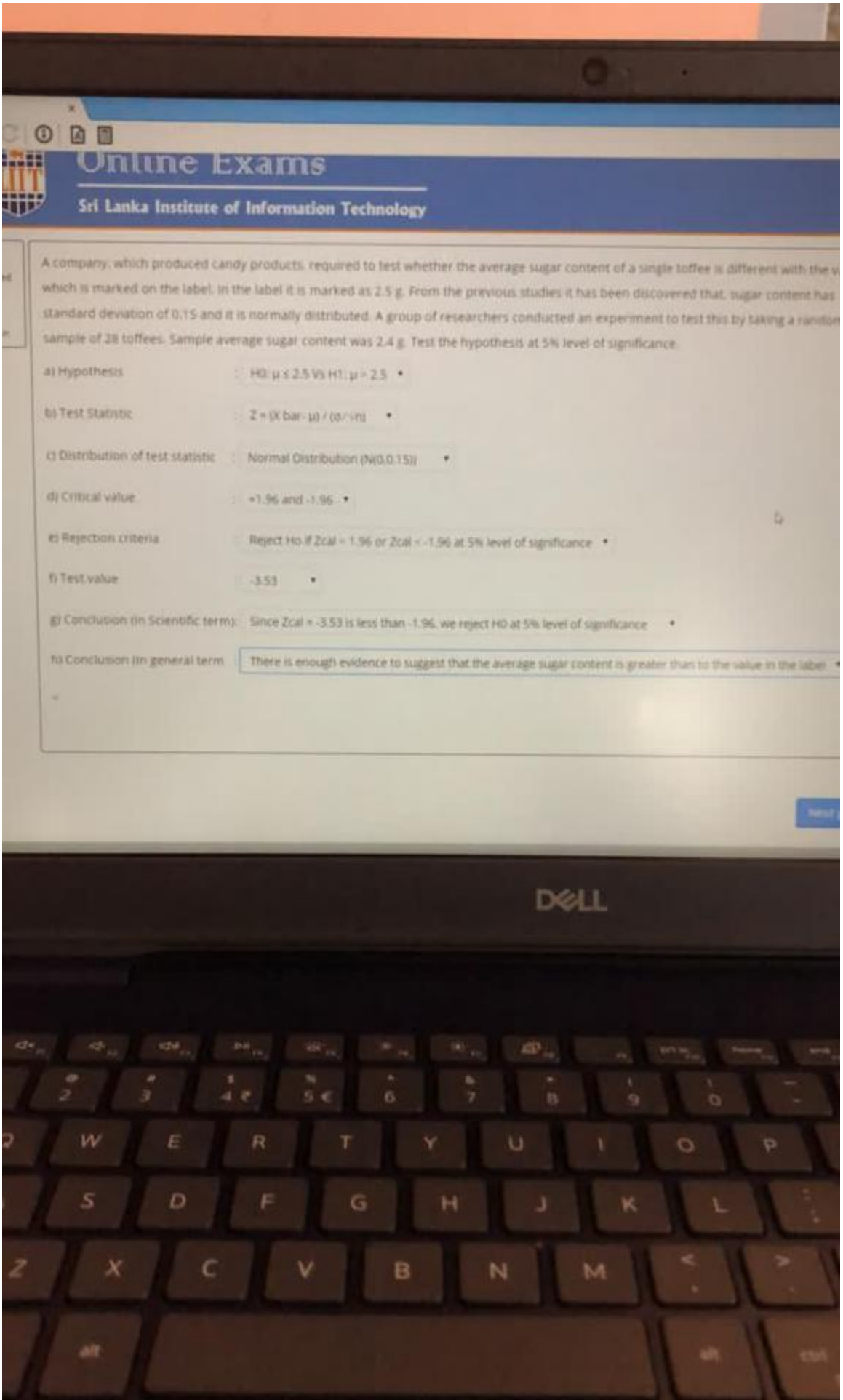
6. Test value: 9.3285

7. Conclusion (in Scientific term):

Since t cal = 12.5212 > 2.353, do not reject H0 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


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 v
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 : H0: μ ≤ 2.5 Vs H1: μ > 2.5
b) Test Statistic : Z = (X bar - μ) / (σ/√n)
c) Distribution of test statistic : Normal Distribution (N(0,0.15))
d) Critical value : +1.96 and -1.96
e) Rejection criteria : Reject Ho if Zcal > 1.96 or Zcal < -1.96 at 5% level of significance
f) Test value : -3.53
g) Conclusion (in Scientific term): Since Zcal = -3.53 is less than -1.96, we reject H0 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

Online Exams

Sri Lanka Institute of Information Technology

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

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].

A random sample of 42 batteries, has on average life time of 88.5 hrs with 7.6 stand
the true mean lifetime (μ) of this brand of batteries.

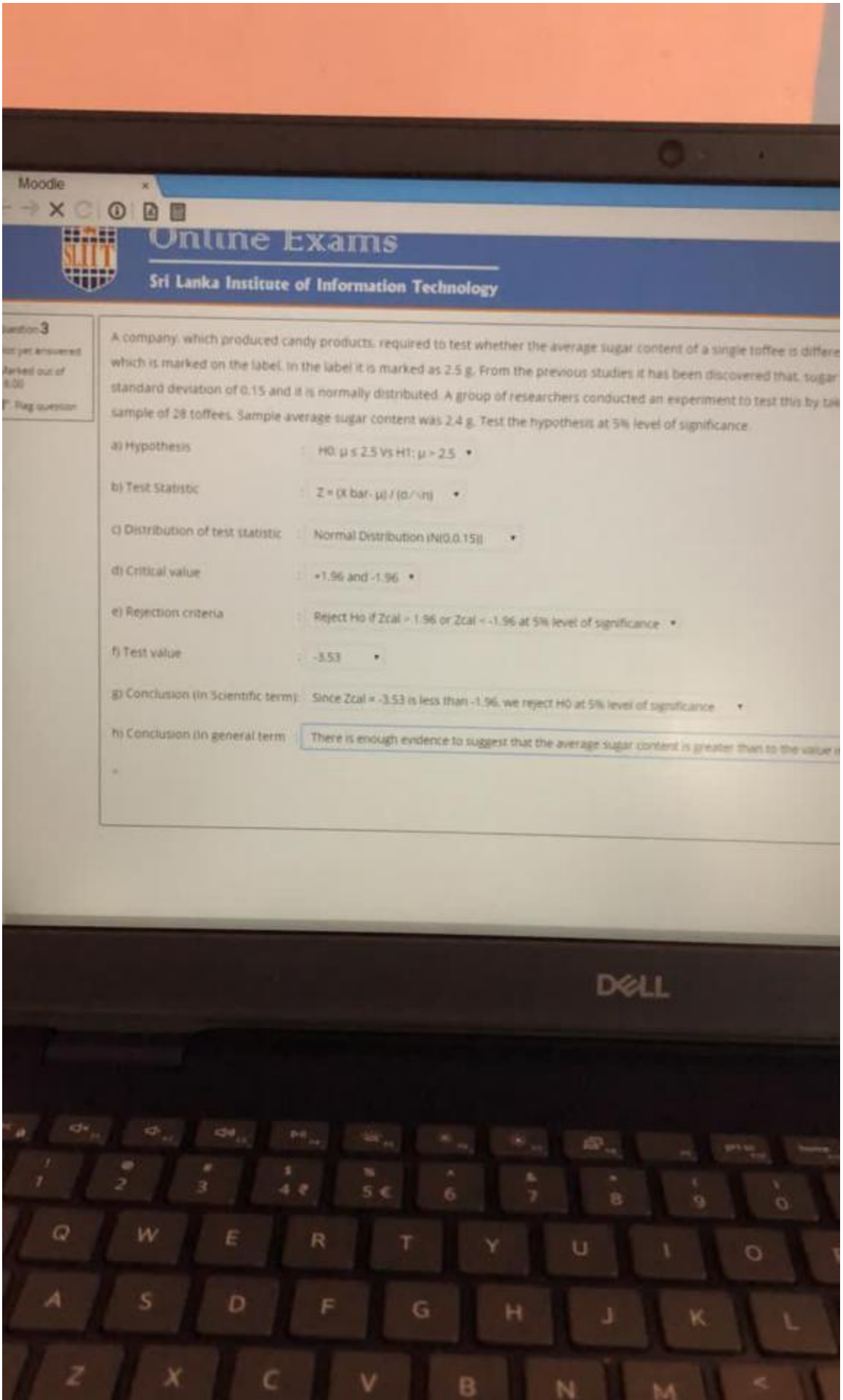
a) Lower Limit Equation : Choose...

b) Upper Limit Equation : Choose...

c) Critical value : Choose...

d) Lower Limit value : Choose...

e) Upper Limit value : Choose...


Moodle
Online Exams
Sri Lanka Institute of Information Technology
Question 3
A company, which produced candy products, required to test whether the average sugar content of a single toffee is differe
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
standard deviation of 0.15 and it is normally distributed. A group of researchers conducted an experiment to test this by tak
sample of 28 toffees. Sample average sugar content was 2.4 g. Test the hypothesis at 5% level of significance.
a) Hypothesis : H0: μ ≤ 2.5 Vs H1: μ > 2.5
b) Test Statistic : Z = (X bar- μ) / (σ/√n)
c) Distribution of test statistic : Normal Distribution (N(0,0.15))
d) Critical value : +1.96 and -1.96
e) Rejection criteria : Reject Ho if Zcal > 1.96 or Zcal < -1.96 at 5% level of significance
f) Test value : -3.53
g) Conclusion (in Scientific term): Since Zcal = -3.53 is less than -1.96, we reject H0 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
DELL

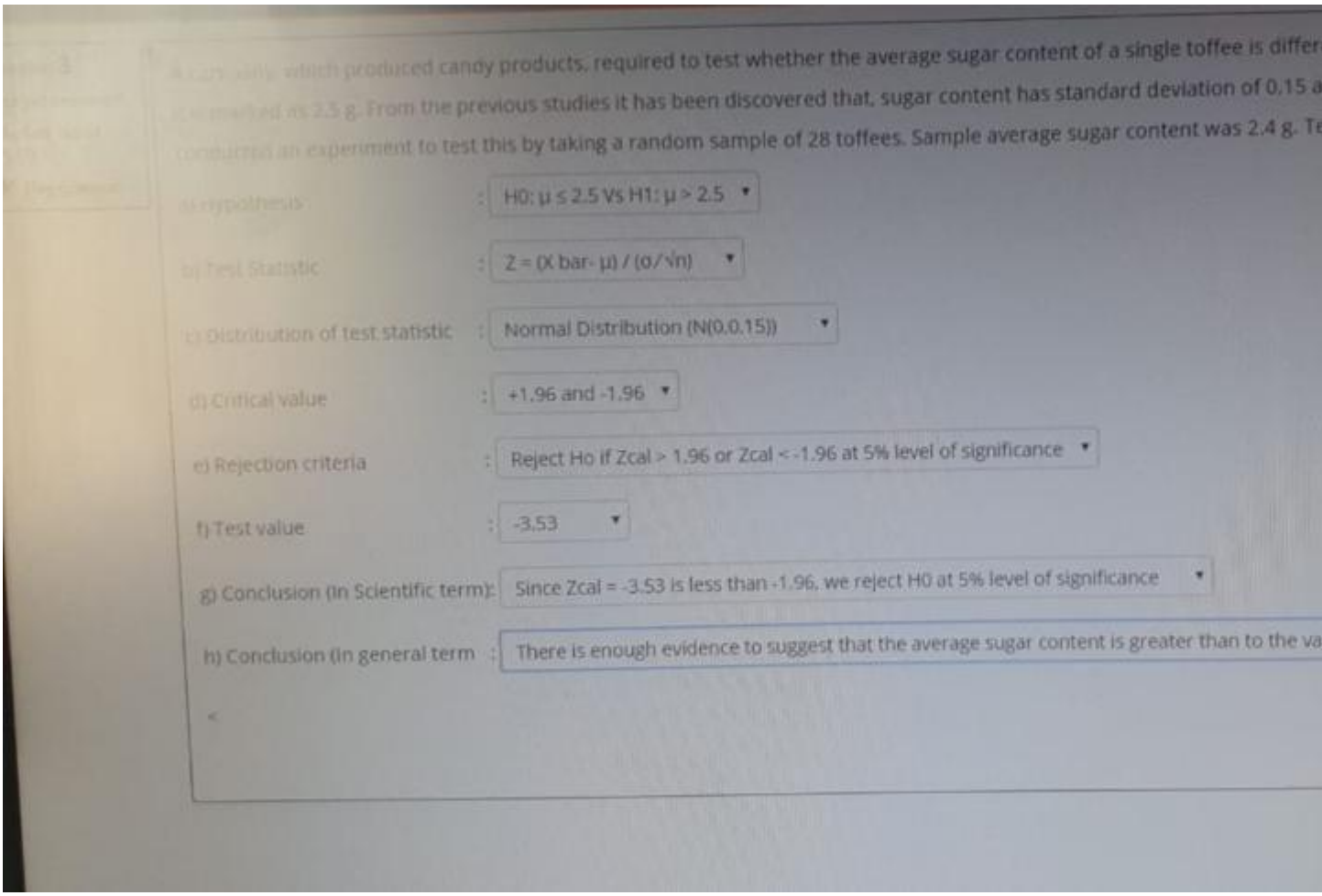
Online Exams

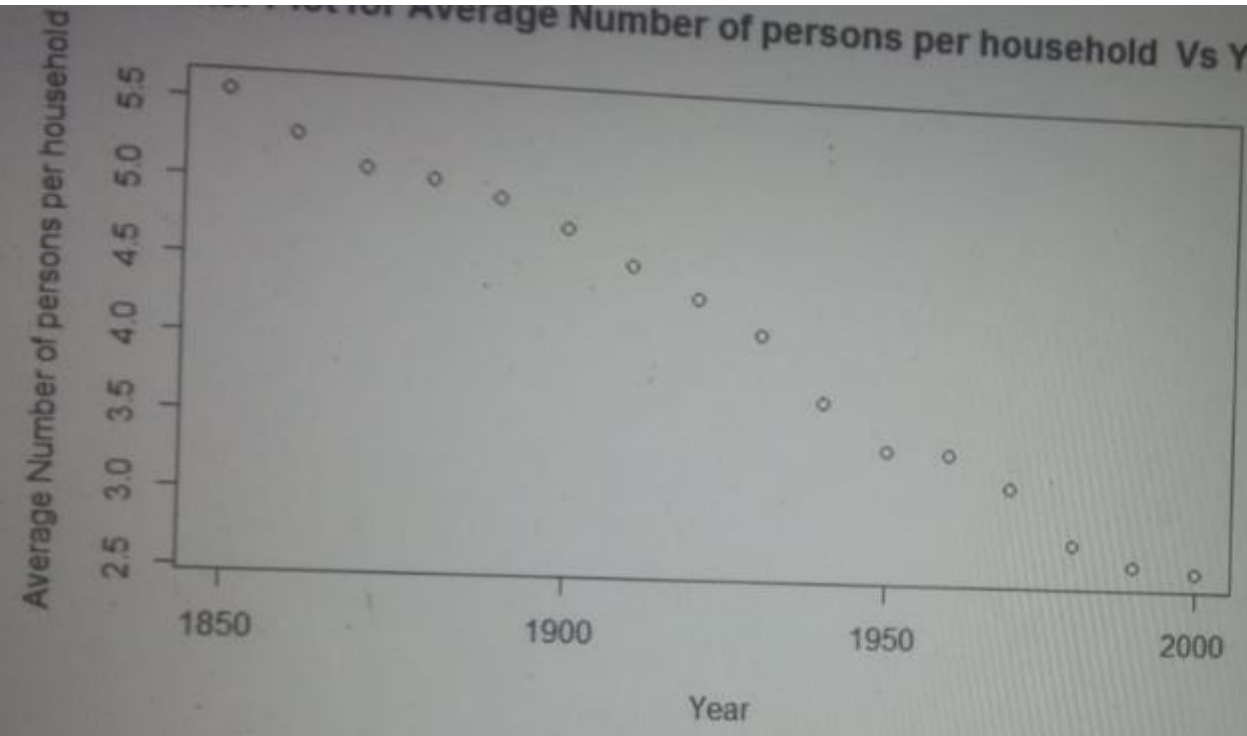
Sri Lanka Institute of Information Technology

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

Select one:

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


produced candy products, required to test whether the average sugar content of a single toffee is differ
2.5 g. From the previous studies it has been discovered that, sugar content has standard deviation of 0.15 a
conducted an experiment to test this by taking a random sample of 28 toffees. Sample average sugar content was 2.4 g. Te
a) Hypothesis : H0: μ ≤ 2.5 Vs H1: μ > 2.5
b) Test Statistic : Z = (X bar- μ) / (σ/√n)
c) Distribution of test statistic : Normal Distribution (N(0,0.15))
d) Critical value : +1.96 and -1.96
e) Rejection criteria : Reject Ho if Zcal > 1.96 or Zcal < -1.96 at 5% level of significance
f) Test value : -3.53
g) Conclusion (In Scientific term): Since Zcal = -3.53 is less than -1.96, we reject H0 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 va



R outputs of the regression model are shown below.

Regression Model

Coefficients	
Intercept	Year
44.39213	-0.02095

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. Follow

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

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 place

(Type your answer within the given space)

Answer: -1.0023

Moodle

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 in between temperature and the proportion of through solid helium. Temperature is measured in degrees centigrade (^{0}C). He used a sample size of 10 to study this information is given.

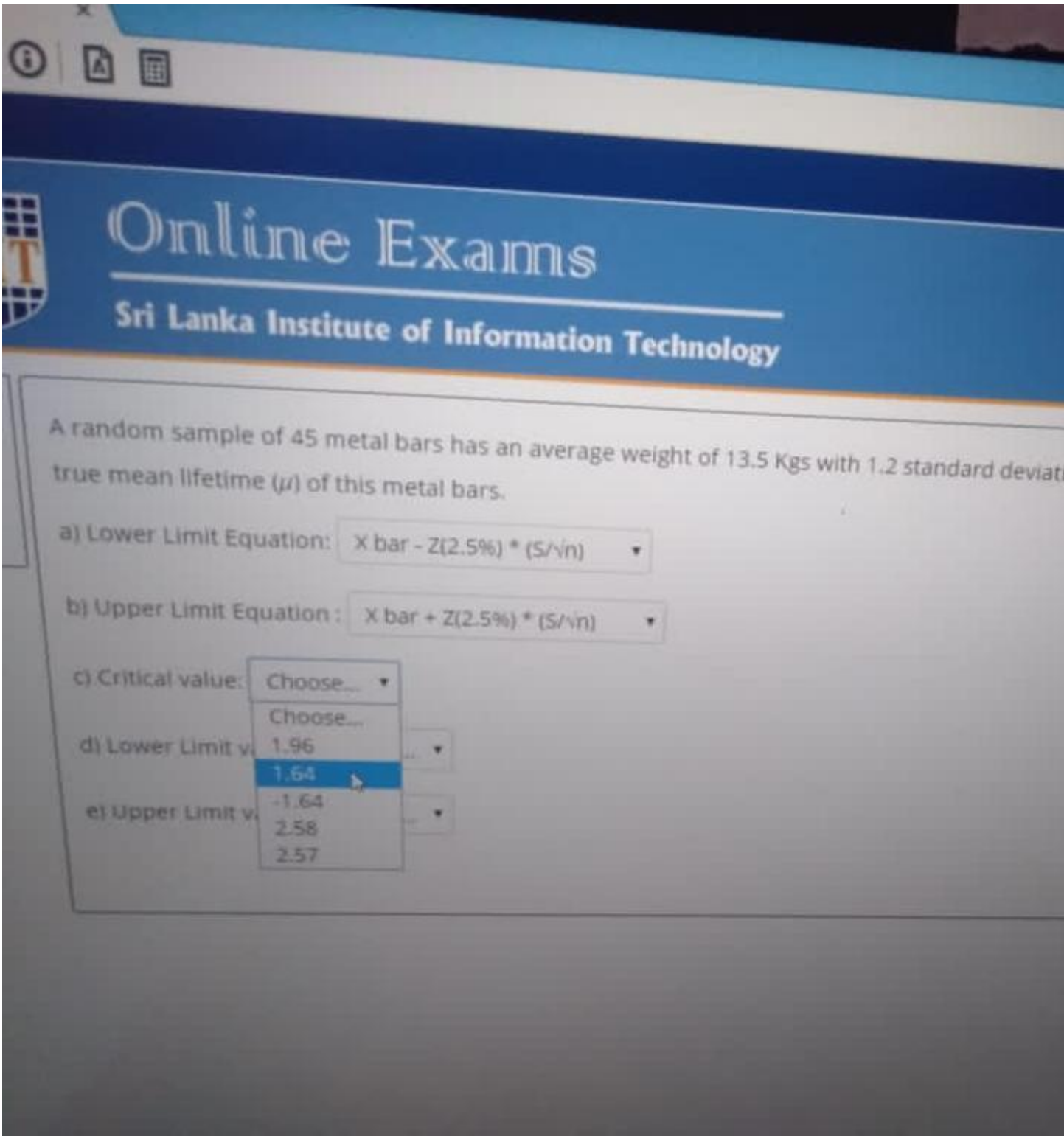
$\sum x$= -2685.6 $\sum y$ = 7.007 $\sum xy$ = -1893.5644 $\sum (x^2)$= 721454.96 $\sum (y^2)$ = 5.634547

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: 0.9919


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 deviat
true mean lifetime (μ) of this metal bars.
a) Lower Limit Equation: X bar - Z(2.5%) * (S/√n)
b) Upper Limit Equation : X bar + Z(2.5%) * (S/√n)
c) Critical value: Choose...
Choose...
1.96
1.64
-1.64
2.58
2.57
d) Lower Limit v
e) Upper Limit v

	≤ 4	5	6	≥ 7	
Abstainer	797	622	496	700	26
Non-Binge	711	1139	984	2128	49
Occasional Binge	247	443	471	1698	28
Frequent Binge	167	448	360	2218	31
Total	1922	2652	2311	6744	136

1. Hypothesis:

H0: There is a relationship in between type of drinker and definition of binge drinking for men Vs. H1: T

Choose...
H0: There is no relationship in between type of drinker and definition of binge drinking for men Vs. H
2. H0: Type of drinker and definition of binge drinking for men are dependent Vs. H1: Type of drinker ar
H0: There is an association in between type of drinker and definition of binge drinking for men Vs. H1
3. H0: There is a relationship in between type of drinker and definition of binge drinking for men Vs. H1
H0: Type of drinker and definition of binge drinking for men are related Vs. H1: Type of drinker and d

4. Critical value: Choose...

5. Rejection criteria: Choose...

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

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

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. W
approximation, calculate the probability that,

a) There will be at least 3 road accidents in a given month. 0.9380

b) Fewer than 2 road accidents in a given month. 0.0174

c) There will be at least 4 road accidents in a given month. 0.7881

using a suitable approximation, find the probability that, there will be at least 4 road accidents in a given month.

swers within the given spaces [Keep all decimal places of the final answer].

2
answered
out of
question

A random sample of 45 metal bars has an average weight of 13.5 Kgs with 1.2 standard d
confidence Interval for the true mean lifetime (μ) of this metal bars.

a) Lower Limit Equation: X bar - Z(0.05) * (S/√n)

b) Upper Limit Equation : X bar + Z(0.05) * (S/√n)

c) Critical value: 1.64

d) Lower Limit value: 12.899

e) Upper Limit value: 13.765

Moodle

Question 1

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

Year	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	20
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	2.5

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 : 0.2438 (Keep all the decimal places in the answer)
5. E : 15.1602 (Keep all the decimal places in the answer)
6. F : 14.9164 (Keep all the decimal places in the answer)
7. G : 856.4097 (Round off the answer up to the fourth decimal point)

(Type your answers within the given spaces)

Not yet answered
Marked out of 7.00
Flag question

2000 are shown in the following table with the ANOVA output for the fitted regress
companion website.)

Year	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	196
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

Analysis of Variance Table

Response: Average number of persons per household

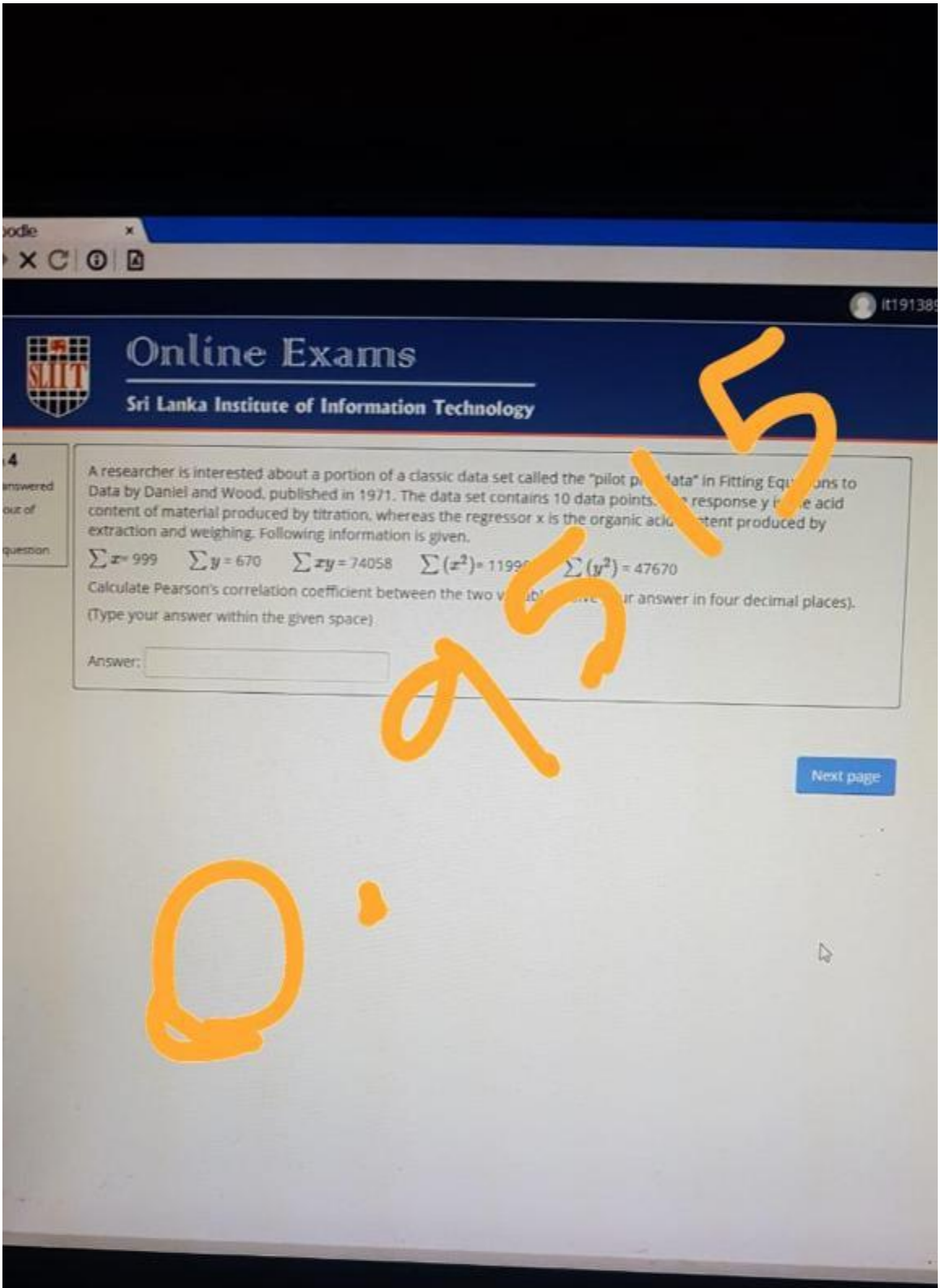
	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Year	A	14.9164	F	G	5.875e-14***
Residuals	B	D	0.0174		
Total	C	E			

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)


Online Exams
Sri Lanka Institute of Information Technology
A researcher is interested about a portion of a classic data set called the "pilot p ata" in Fitting Equ ons to Data by Daniel and Wood, published in 1971. The data set contains 10 data points. response y i e acid content of material produced by titration, whereas the regressor x is the organic acid tent produced by extraction and weighing. Following information is given.
$\sum x = 999$ $\sum y = 670$ $\sum xy = 74058$ $\sum (x^2) = 1199$ $\sum (y^2) = 47670$
Calculate Pearson's correlation coefficient between the two v ir answer in four decimal places).
(Type your answer within the given space)
Answer:
Next page
0.9515

U.S. Census Bureau estimates of the average number of persons per household in the United States for census years between 1850 and 2
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

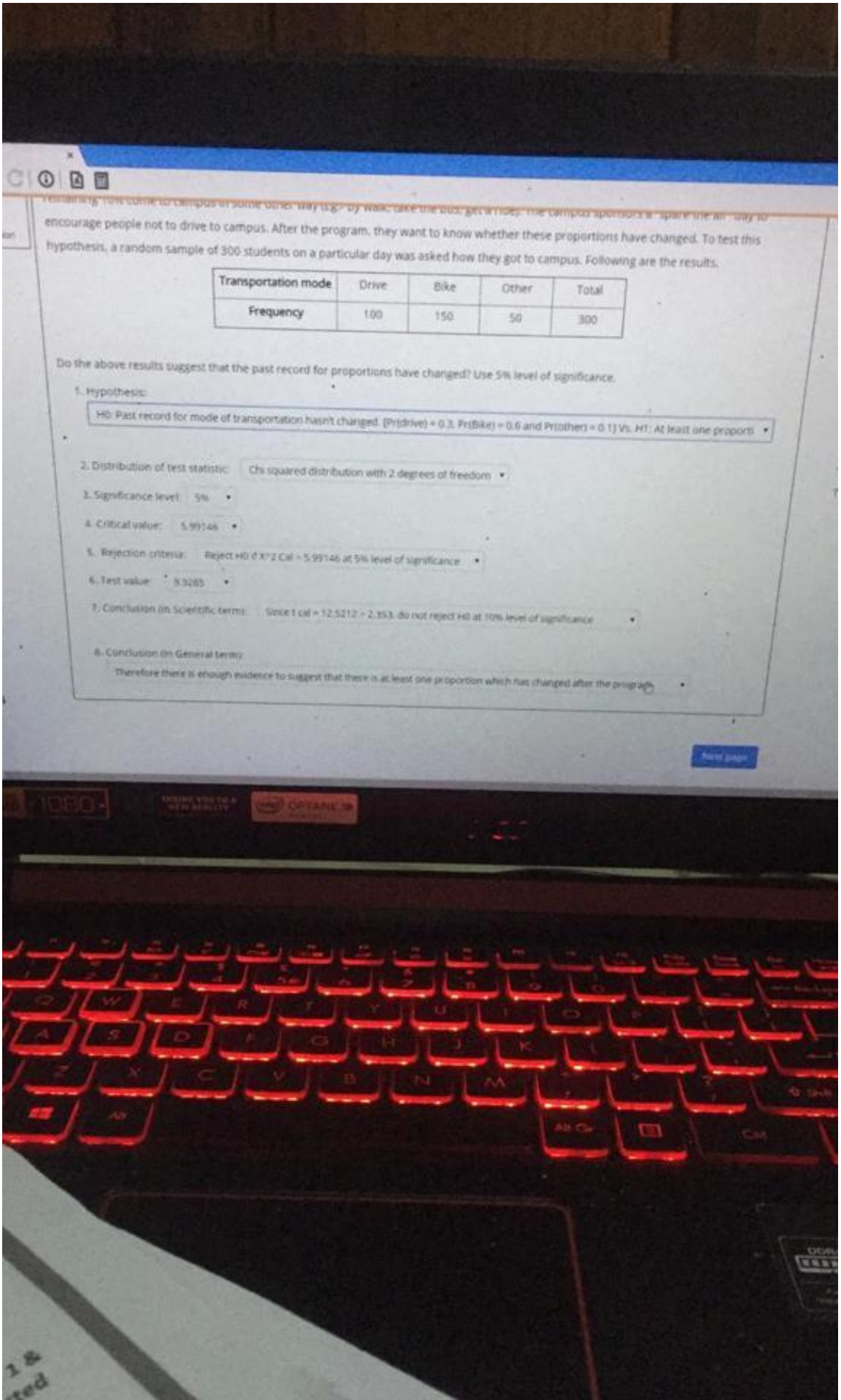
	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Year	A	14.9164	F	G	5.875e-14***
Residuals	B	D	0.0174		
Total	C	E			

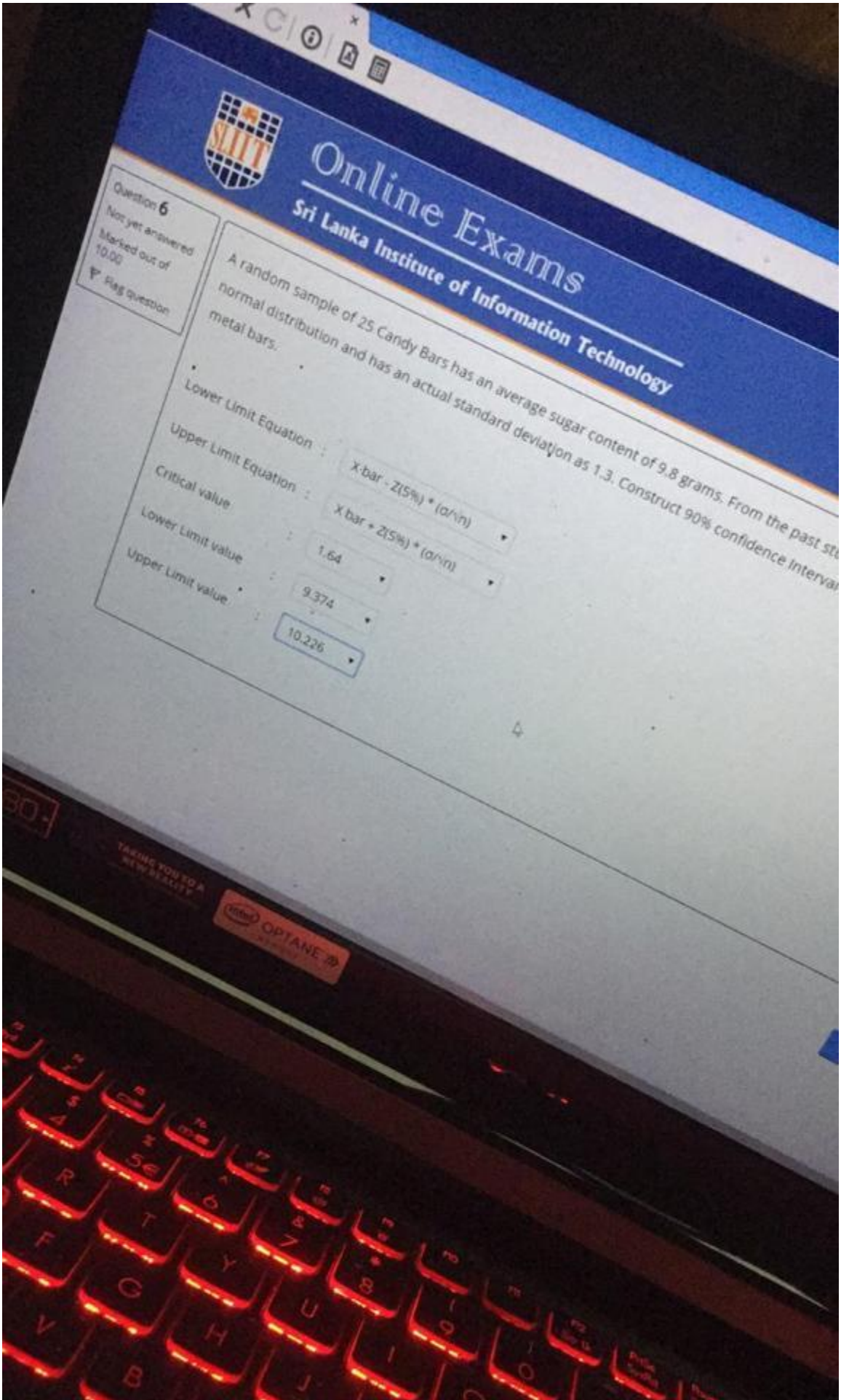
Signif. Codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

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)


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:
H0: Past record for mode of transportation hasn't changed. (Pr(drive) = 0.3, Pr(Bike) = 0.6 and Pr(other) = 0.1) Vs. H1: At least one proporti
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 H0 if X^2 Cal > 5.99146 at 5% level of significance
6. Test value: 9.9285
7. Conclusion (in Scientific term): Since t cal = 12.5212 > 2.353, do not reject H0 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 the program


Online Exams
Sri Lanka Institute of Information Technology
Question 6
Not yet answered
Marked out of 10.00
Flag question
A random sample of 25 Candy Bars has an average sugar content of 9.8 grams. From the past st
normal distribution and has an actual standard deviation as 1.3. Construct 90% confidence interva
metal bars.
Lower Limit Equation : X bar - Z(5%) * (σ/√n)
Upper Limit Equation : X bar + Z(5%) * (σ/√n)
Critical value : 1.64
Lower Limit value : 9.374
Upper Limit value : 10.226

U.S. Census Bureau estimates of the average number of persons per household i
between 1850 and 2000 are shown in the following table. (These data are in the fi

Year	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	196
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

To examine the relationship between the year and average number of persons per h
used.

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

Where X is the year and Y is the average number of persons per household in the Unit

Calculate Pearson's correlation coefficient between the two variables (Give your answe

(Type your answer within the given space)

Answer

1. Hypothesis:

H0: There is a relationship in between size of a family and level of education attain

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 H0 if X^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 X^2 Cal = 9 < 13.2767, do not reject H0 at 1%

8. Conclusion (in General term):

Therefore there is enough evidence to suggest that size of a family is dependent on