



**UNIVERSITI TEKNOLOGI MARA
ASSESSMENT 3**

COURSE : STATISTICS FOR BUSINESS AND SOCIAL SCIENCES

COURSE CODE : STA404

TASK : CASE STUDY ASSIGNMENT (GROUP)

DURATION : 5 DAYS ONLY (WEEK 12)

INSTRUCTIONS TO CANDIDATES

1. This question paper consists of **FOUR (4)** questions.
2. Candidates are required to choose the most appropriate analysis for the question.
3. You may answer ALL questions using SPSS software in order to produce the output of the selected analysis for the question or perform the analysis manually.
4. If you use the SPSS output, perform the analysis according to the procedure.
5. Candidates must accomplish this group assessment within FIVE(5) days.
6. Candidates are required to convert their completed answer in one PDF file before submission (<FULLNAME_GROUP>.pdf) ex: ALI_KAM2283F.pdf
7. Answer ALL questions in English.

NAME:

STUDENT NO:

- 1)
- 2)
- 3)
- 4)

GROUP:

Q1	/5	
Q2	/5	
Q3	/5	
Q4	/5	
TOTAL	/20	%

PLEASE SUBMIT THIS ASSESSMENT ON THE REQUIRED DATE

This assessment paper consists of 2 printed pages

QUESTION 1

Refer to Exercise 8-3; Question 21, page 450 from textbook A.G. Bluman, Elementary Statistics: A Step by Step Approach, 9th ed., MCGraw Hill Higher Education, 2014, ISBN:9780073534985. Perform an appropriate analysis and answer the following questions:

(5 marks)

QUESTION 2

Refer to Exercise 9-2; Question 14, page 504 from textbook A.G. Bluman, Elementary Statistics: A Step by Step Approach, 9th ed., MCGraw Hill Higher Education, 2014, ISBN: 9780073534985. Perform an appropriate analysis and show your calculation clearly.

(5 marks)

QUESTION 3

Refer to Exercise 9-3; Question 12, page 516 from textbook A.G. Bluman, Elementary Statistics: A Step by Step Approach, 9th ed., MCGraw Hill Higher Education, 2014, ISBN: 9780073534985. Perform an appropriate analysis and show your calculation clearly.

(5 marks)

QUESTION 4

Refer to Exercise 12-1; Question 20, page 658 from textbook A.G. Bluman, Elementary Statistics: A Step by Step Approach, 9th ed., MCGraw Hill Higher Education, 2014, ISBN: 9780073534985. Perform an appropriate analysis and show your calculation clearly.

(5 marks)

END OF QUESTIONS

QUESTION 1

OUTPUT:

2

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
NUMBER_OF_VISITS	20	3.85	2.519	.563

One-Sample Test

	Test Value = 5.8					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
NUMBER_OF_VISITS	-3.462	19	.003	-1.950	-3.13	-.77

$$H_0: \mu = 5.8 \text{ (c/q/m)} \checkmark$$

$$H_1: \mu \neq 5.8 \checkmark$$

$$\alpha = 0.05$$

$$p\text{-value} = 0.003 \checkmark$$

Decision: Since $p\text{-value} (0.003) < \alpha (0.05)$, Reject H_0 ✓

Conclusion: There is not enough evidence to conclude that the average is still 5.8 visits per year. ✓

3

(5 marks)

QUESTION 2

output =

(1)

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Goals Equal variances assumed	.000	.991	1.202	18	.245	5.505	4.581	-4.119	15.129
Goals Equal variances not assumed			1.174	15.244	.258	5.505	4.688	-4.473	15.483

Levene Test

$H_0: \sigma_1^2 = \sigma_2^2$

$H_1: \sigma_1^2 \neq \sigma_2^2$

$\alpha = 0.05$

pvalue = 0.991

Decision: Since pvalue (0.991) > α (0.05), Accept H_0

Conclusion: Equal variances assumed.

(1.5)

$H_0: \mu_1 = \mu_2$

$H_1: \mu_1 \neq \mu_2$ (claim)

$\alpha = 0.05$

pvalue = 0.245

Decision: Since pvalue (0.245) > α (0.05), Accept H_0

Conclusion: There is not enough evidence to conclude that there is a difference in means.

1- Eastern

2- western

(2.5)

QUESTION 3

OUTPUT: 2

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Before - After	3.500	2.881	1.176	.477	6.523	2.976	5	.031

$H_0: \mu_d = 0$ ✓
 $H_1: \mu_d > 0$ (claim) ✓ 172
 $\alpha = 0.05$
 $p\text{-value} = 0.031 / 2 = 0.0155$ ✓
 Decision: Since $p\text{-value} (0.0155) < \alpha (0.05)$, Reject H_0 ✓
 Conclusion: There is enough evidence to conclude that there was a decrease in the mean number of mistakes - ✓ 3

(5 marks)

QUESTION 4

OUTPUT: 2

ANOVA

Debt					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	56889040.950	3	18963013.650	5.543	.008
Within Groups	54737476.800	16	3421092.300		
Total	111626517.750	19			

$$H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4 \quad \checkmark$$

H_1 : At least one differs from four states (claim) \checkmark

$$\alpha = 0.05$$

$$p\text{value} = 0.008 \quad \checkmark$$

Decision: Since $p\text{value} (0.008) < \alpha (0.05)$, Reject H_0 \checkmark

Conclusion: The average debt at graduation differs from these four states: \checkmark

3

(5 marks)

CONFIDENTIAL