FINAL ALTERNATIVE ASSESSMENT
Examination Paper

(COVER PAGE)

Session	:	**April 2021**
Programme	:	Diploma In Business (DIB) Diploma In Finance (DIF/DFIN) Diploma In Marketing (DMKT) Diploma In E-Commerce (DEC) Diploma In Accounting (DIAN)
Course	:	**STA1101: Quantitative Methods**
Date of Examination	:	July 28, 2021 (Wednesday)
Time	:	8.00am – 10.30am Reading Time : Nil
Duration	:	2 Hours : 30 Minutes

Note: 30 minutes is added into the duration of the examination to factor in any connectivity matters and for you to scan and upload your scripts.

Special Instructions :

This paper consists of **FOUR (4)** questions. Answer **ALL FOUR (4)** questions on a full scape paper.

Materials permitted :
Non-Programmable Calculator

Materials provided :
STA1101 Formula Booklet

Examiner(s)	:	**Dinesh Kumar Govindasamy,** Hatin Fatihah Hassan, Abdullah Sholehin Mohd Zainudin, Goh Chok Huat, Siew Woo Bing, Saemila Devi, Cetha Achutan Nair and Angeline Tan Yun Lee
Moderator	:	Teng Mei Tuan

*This paper consists of **4** printed pages, including the cover page*

DIPLOMA IN BUSINESS (DIB)
DIPLOMA IN FINANCE (DIF/DFIN)
DIPLOMA IN MARKETING (DMKT)
DIPLOMA IN E-COMMERCE (DEC)
DIPLOMA IN ACCOUNTING (DIAN)
STA1101: QUANTITATIVE METHODS
FINAL ALTERNATIVE ASSESSMENT: APRIL 2021 SESSION

Instructions: This paper consists of **FOUR (4)** questions. Answer **ALL FOUR (4)** questions on a full scape paper. All questions carry equal marks.

Question 1

(a) The following data give the prices (in RM'000) of 20 single storey houses sold recently in Melaka.

484	**597**	**565**	**509**	**545**
587	**469**	**538**	**675**	**690**
523	**578**	**510**	**479**	**507**
471	**557**	**595**	**559**	**690**

(i) Find the mean and standard deviation for the above data. (5 marks)

(ii) Construct a 99% confidence interval for the true population mean value of single storey house in Melaka. (5 marks)

(iii) A property agent claims that on average, a single storey house in Melaka will be sold at less than RM 590,000 per unit in Melaka. Test the property agent's claim at $\alpha = 0.05$, if the claim is true. (7 marks)

(b) Two groups of Bachelors in Business Administration students are given a problem-solving test, and the results are compared. At $\alpha = 0.1$, find if there is a true difference in their means.

Human Resource Major	Business Management Major
$Mean = 72.5$	$Mean = 62.9$
$Standard\ Deviation = 6.3$	$Standard\ Deviation = 7.8$
$Sample\ Size = 60$	$Sample\ Size = 60$

(8 marks)

[Total: 25 marks]

Question 2

(a) One thousand randomly selected adults were asked whether or not they have ever shopped on Shopee platform. The following table gives a two-way classification of the responses.

Gender	**Responses**	
	Have Shopped	**Have not shopped**
Male	300	200
Female	400	100

Test at 1% level of significance whether there is any association between gender and the responses made by the selected adults. (13 marks)

(b) A sample of 500 nursing applications included 60 from men. Find the 99% confidence interval of the true proportion of men who applied to the nursing program. (7 marks)

(c) A researcher wishes to estimate the number of days it takes an automobile dealer to sell a Proton X70. A sample of 90 cars had a mean time on the dealer's lot for 7 days. Assume the population standard deviation to be 1.5 days. Find the best point estimate of the population mean and the 95% confidence interval of the population mean. (5 marks)

[Total: 25 marks]

Question 3

(a) The state government recently granted funds for a special program designed to reduce crime in high-crime areas. A study of the results of the program in eight high-crime areas in Klang Valley, yielded the following results.

Area	Before	After
A	14	2
B	7	7
C	4	3
D	5	6
E	17	8
F	12	13
G	8	3
H	9	5

Test at 5% significance level, whether the government's initiative have significantly reduced the crime rate in the listed area. (11 marks)

(b) A researcher wishes to test the claim that the average cost of tuition and fees at Malaysia private colleges is greater than RM 30,000. She selects a random sample of 50 private colleges and finds the mean to be RM 34,000. The population standard deviation is to be RM 1,659. Test at 5% significance level whether the claim is true. (7 marks)

(c) A recent survey found that 68.6% of the population own their homes. In a random sample of 150 heads of households, 92 responded that they owned their homes. At 1% level of significance, does that suggest a difference from the population proportion?

(7 marks)

[Total: 25 marks]

Question 4

(a) Below are the prices of milk, banana, and tomato for the year 2011 and 2021. Also included are the quantities purchased. Use 2011 as the base year.

Item	2011		2021	
	Price(RM)	Quantity	Price(RM)	Quantity
Milk	3.70	1L	6.72	1L
Banana	3.50	1.5kg	4.97	1kg
Tomato	4.50	1.5kg	4.54	1kg

(i) Determine the Paasche's quantity index for 2021. (3 marks)

(ii) Determine the Laspeyre's price index for 2021. (3 marks)

(b) A glove manufacturing company wanted to investigate how the price of its glove moulding machine depreciates with age. The research department at the company took a sample of ten of their glove moulding machines and collected the following information on their ages (in years) and prices (RM '000) of these cars.

No	Age (in years)	Prices (RM '000)
1	8	450
2	3	910
3	6	700
4	9	350
5	2	1100
6	5	734
7	6	809
8	4	870
9	5	700
10	7	410

(i) Determine the least square regression equation that can be used to estimate the prices of the glove moulding machine on the age of the machine. (5 marks)

(ii) Draw a scatter diagram on a graph paper and comment on the relationship between the two variables. (5 marks)

(iii) Find the correlation of coefficient and comment on the strength of correlation that exists between the two variables. Comment on your answer. (3 marks)

(iv) Calculate the coefficient of determination of the data above and comment on your answer. (4 marks)

(v) Estimate the price of the machine at the age of 12 years. (2 marks)

[Total: 25 marks]

~THE END~