INTI International University & Colleges

FINAL
ALTERNATIVE ASSESSMENT
(COVER PAGE)

Session	:	**January 2021**		
Programme	:	Diploma In Business (DIB) Diploma in Finance (DIF) Diploma In Entrepreneurship (DENT)		
Course	:	STA1101 : QUANTITATIVE METHODS		
Date of Examination	:	6 March 2021 (Saturday)		
Time	:	4:00pm – 6:30pm	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)** structured-type questions. Answer **ALL** the questions handwritten showing all steps in either **BLUE/BLACK** ink on foolscap papers. Then, upload the answers (**PDF FORMAT in ONE file**) to Blackboard.

Material permitted	:	Non programmable calculator
Material provided	:	Formula booklet
Examiner(s)	:	**Goh Chok Huat**
Chief Moderator	:	Teng Mei Tuan

DIPLOMA IN BUSINESS PROGRAMME (DIB)
DIPLOMA IN FINANCE PROGRAMME (DIF)
DIPLOMA IN ENTREPRENEURSHIP PROGRAMME (DENT)
STA1101 QUANTITATIVE METHODS
FINAL ALTERNATIVE ASSESSMENT: JANUARY 2021 SESSION

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Question 1

(a) (i) The number of calories for Brand *X* diet soda was recorded on a random sample of 8 cans. The calories were:

28, 26, 19, 24, 23, 24, 22, 26.

Calculate a 99% confidence interval for the mean number of calories.

(8 marks)

(ii) The number of calories for another brand (Brand *Y*) of diet soda was recorded on a random sample of 7 cans. The sample mean and sample standard deviation for this sample was 21 calories and 3 calories respectively.

Assume that the variances of number of calories for both brands are unknown but equal, test whether there is evidence of a significant difference between the two brands in the mean number of calories. Use 5% level of significance.

(10 marks)

(b) A pizza parlor boasts that it can deliver pizzas on the average in less than 33 minutes. A random sample of 25 delivery times yields a sample mean of 31.9 minutes. If we assume that the population standard deviation is $\sigma = 4$ minutes, can we conclude at the 10% significance level that the pizza parlor is correct?

(7 marks)

Question 2

(a) An advertising research department of a television manufacturing company has chosen four cities. It is believed that each city has the same sale potential. The actual number of television sets sold by the company in each city, during a one-month period is given below:

City	A	B	C	D
No. of sets sold	120	135	140	125

Test the hypothesis that the four cities have equal sale potential using a level of significance of 0.01.

(9 marks)

(b) The efficiency of two training centres in a large organisation is to be evaluated. The examination results of a group of students from each centre on a common test are:

Centre	*X*	*Y*
Sample Size	50	40
Sample Mean	82.5	77
Sample Standard Deviation	7.2	9.1

Test at 1% level of significance, whether there is a significant difference in examination results between centres.

(8 marks)

(c) The prices and sales quantities of different types of paste produced by a local small size manufacturer in year 2019 and 2020 are listed below.

Type of paste	Year 2019		Year 2020	
	Price (RM/bottle)	Quantity (bottle)	Price (RM/bottle)	Quantity (bottle)
Curry paste	3.00	5900	3.20	6200
Tomato paste	2.60	8600	2.20	9000
Prawn paste	3.30	7200	3.40	5500

(i) Using year 2019 as the base, calculate Laspeyres price index for year 2020. Interpret the result.

(4 marks)

(ii) Using year 2019 as the base, calculate Paasche quantity index for year 2020. Interpret the result.

(4 marks)

Question 3

(a) A company recently arranged an intensive training course for its team of salesmen. A random sample of 10 salesmen was selected and the value (in RM hundred) of their sales made in the weeks immediately before and after the course are shown in the following table.

Salesman	1	2	3	4	5	6	7	8	9	10
Sales before	12	23	5	18	10	21	19	15	8	14
Sales after	18	22	15	21	13	22	17	19	12	16

Test, at 1% level of significance, whether there is evidence of an increase in mean sales.

(13 marks)

(b) The table below shows the type of industry that students majoring in Accounting and Business joined upon graduation.

Degree Major	Industry		
	Banking	Finance	Insurance
Accounting	30	15	15
Business	30	30	20

Test whether there is evidence of significant association between degree major and industry joined. Use 5% level of significance.

(12 marks)

Question 4

The table below shows the age (in years) of 9 motor vehicles and their respective maintenance expenditures (in RM'000) per annum.

Age (years)	Maintenance expenditure per annum (RM'000)
6	3.1
7	3.6
4	2.5
3	1.9
5	2.5
6	3.3
2	1.8
2	1.6
1	1.0

(a) On a graph paper, draw a scatter diagram of maintenance expenditure per annum against age.

(4 marks)

(b) Calculate the correlation coefficient and comment.

(7 marks)

(c) Calculate the coefficient of determination and comment.

(3 marks)

(d) Determine the least squares regression equation of maintenance expenditure per annum on age.

(4 marks)

(e) Interpret the constant and the gradient of the regression equation.

(4 marks)

(f) Estimate the maintenance expenditure per annum of a 9-year-old motor vehicle. Comment on the reliability of the estimate.

(3 marks)

~THE END~