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FACULTY OF HEALTH AND APPLIED SCIENCES

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DEPARTMENT OF MATHEMATICS & STATISTICS

Basic Business Statistics 1B

BBS112S

Assignment TWO

DUE DATE: 08 NOVEMBER 2021 @23:00

Information and Instructions:

- Assignment should be submitted in PDF file only.
- All students in any assignment group are expected to participate fully.
- All students in the same assignment group will earn the same marks.
- After submitting the assignment, the group may be asked to defend the submission before the course lecturer (or his nominated representative). The lecturer may nominate any member of a group to defend the submission on behalf of the group.
- Each group should have a minimum of 4 students and a maximum of 6 students.
- **Please convert your assignment into a PDF file and upload it on E-learning.**
- The submission should indicate the names and student numbers of the members of the group and **ONLY** one student per group should upload the assignment.

TAKE NOTE:

This assignment is for Full-time and Part-time students **ONLY**.

1. Given that the resting heart rates of 25 students is given in the following table.

61 63 64 65 65 67 71 72 73 74
75 77 79 80 81 82 83 83 84 85
89 95 95

- (a) Construct a 50% confidence interval for the standard deviation of the resting heart rates for students in this particular class. [10]

- (b) Given that the students heart rate of the unknown population variance is claimed to be no different from 144. Test at 5% that data disagree with the claim. [9]

2. The average prices and quantities of fruits in a certain fixed market for the years 2015 and 2017 were as in the table below.

Fruit	2016		2017	
	Price/kg (NAD)	Quantity (tons)	Price/kg (NAD)	Quantity (tons)
Orange	18	500	16	600
Banana	15	273	20	317
Strawberry	22	382	27	321
Mango	12	431	18	284

- (a) Calculate price index for orange for 2017 with 2016 as base year and interpret it. [2]

- (b) Use Paasche's approach to calculate composite price index for these fruits for 2017 with 2016 as base year and interpret it. [5]

- (c) Use Laspeyres' approach to calculate composite quantity index for these fruits for 2017 with 2016 as base year and interpret it. [5]

3. Consider the following time series data.

Week	Day	Sales (NAD '000')
1	Mon	2
	Tue	4
	Wed	7
	Thu	5
	Fri	4
2	Mon	7
	Tue	11
	Wed	12
	Thu	10
	Fri	8
3	Mon	12
	Tue	14
	Wed	15
	Thu	18
	Fri	11

- (a) Calculate the 4-period moving average sales for these data. [5]
- (b) Predict the sales on Friday of the 4th week using OLS trend line with sequentially coded time, starting with $x = 3$. [7]
- (c) Predict the sales on Friday of the 5th week using OLS trend line with zero-sum coded time. [7]