Private & Confidential

FACULTY OF BUSINESS

FINAL EXAMINATION

Student ID (in Figures)	:	
Student ID (in Words)	:	

Subject Code & Name	:	**STA1314 Business Statistics**
Trimester& Year	:	January – April 2024
Lecturer/Examiner	:	Suhada Binti Ishak
Duration	:	2 Hours

INSTRUCTIONS TO CANDIDATES

1. **This question paper consists of 2 parts:**
   PART A (60 marks) **: THREE (3) short answer questions. Answer ALL questions in the Answer Booklet provided.**
   PART B (40 marks) **: TWO (2) long answer questions. Answer ALL questions. Answers are to be written in the Answer Booklet provided.**
2. **Candidates are not allowed to bring any unauthorized materials except writing equipment into the Examination Hall. Electronic dictionaries are strictly prohibited.**
3. **This question paper must be submitted along with all used and/or unused rough papers and/or graph paper (if any). Candidates are NOT allowed to take any examination materials out of the examination hall.**
4. **Only BLACK or BLUE ballpoint pens are allowed to be used in answering the questions, with the exception of multiple choice questions, where 2B pencils are to be used.**

WARNING: The University Examination Board (UEB) of BERJAYA University College regards cheating as a most serious offence and will not hesitate to mete out the appropriate punitive actions according to the severity of the offence committed, and in accordance with the clauses stipulated in the Students' Handbook, up to and including expulsion from BERJAYA University College of Hospitality.

Total Number of pages = 4 (Including the cover page)

PART A : SHORT ANSWER QUESTIONS (60 MARKS)

INSTRUCTION(S) : Answer **ALL** questions in the Answer Booklet(s) provided.

Question 1

Explain the differences between primary data and secondary data in the context of statistical research. In your response, include a clear definition of each, differences in their collection methods, time and cost implications and specificity to research needs. Additionally, provide one distinct example for each type of data to illustrate your points.

[20 marks]

QUESTION 2

A researcher has collected data on the monthly rainfall (in millimeters) in a particular region over 20 months. The data is as follows:

56 ,62, 67, 56, 70, 74, 62, 80, 85, 90, 95, 100, 105, 110, 62, 115, 120, 125, 130, 135

i. Calculate the mean, mode, and median of the monthly rainfall data.

(6 marks)

ii. Determine the variance and standard deviation of the monthly rainfall data.

(9 marks)

iii. Find the quartiles and provide the five-number summary (Minimum, Q1, Median, Q3, Maximum) of the dataset.

(5 marks)

iv. Create a box plot for the dataset and describe the skewness of the data.

(5 marks)

[Total: 25 marks]

QUESTION 3

A manager is interested in testing whether three populations of interest have equal population means. Simple random samples of size 10 were selected from each population. The following ANOVA table and related statistics were computed.

ANOVA: Single Factor

Summary

Groups	Count	Sum	Average	Variance
Sample 1	10	507.18	50.72	35.06
Sample 2	10	405.79	40.58	30.08
Sample 3	10	487.62	48.76	23.13

ANOVA

Source	*SS*	*df*	*MS*	*F*
Between Groups	578.78	2	X	Z
Within Groups	794.36	27	Y	
Total	1,373.14	29		

a. Complete the table above by finding the value of *X*, *Y* and *Z*.

(9 marks)

b. State the appropriate null and alternative hypothesis.

(3 marks)

c. Conduct the appropriate test of the null hypothesis assuming that the populations have equal variances and the populations are normally distributed. Use a 0.05 level of significance.

(3 marks)

[Total: 15 marks]

PART B **: LONG ANSWER QUESTIONS (40 MARKS)**
INSTRUCTION(S) **:** Answer **ALL** questions in the Answer Booklet(s) provided.

Question 1

The quality-control manager at a compact fluorescent light bulb (CDF) factory needs to determine whether the mean life of a large shipment of CDFs is equal to 7,500 hours. The population standard deviation is 1,000 hours. A random sample of 64 CDFs indicates a sample mean life of 7,250.

a. Determine is there any evidence that the mean life is different from 7,500.
(Use $\alpha = 0.05$)

(6 marks)

b. Compute p -value and interpret its meaning.

(4 marks)

[Total: 10 marks]

Question 2

Listed below are five (5) datasets on Exam score based on student's study hours per week.

Study Hours per Week	Exam Score
35.70	82.90
21.57	45.60
32.30	51.34
35.84	82.72
12.72	19.51

Using above dataset:

i. Construct a scatter plot for the above dataset.

(3 marks)

ii. Calculate Pearson correlation coefficient to determine the strength and direction of the relationship between study hours per week and exam scores.

(15 marks)

iii. Perform a simple linear regression analysis. Determine the regression equation, interpreting the slope and intercept in the context of the relationship between study hours and exam scores.

(10 marks)

iv. Predict the exam score for a student who studies 25 hours per week using your regression equation.

(2 marks)

[Total: 30 marks]

END OF EXAM QUESTIONS