



## FACULTY OF BUSINESS

## FINAL EXAMINATION

Student ID (in Figures) :

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Student ID (in Words) :

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Subject Code & Name : **STA1314 Business Statistics**

Trimester &amp; Year : January – April 2023

Lecturer/Examiner : Suhada Binti Ishak

Duration : 2 Hours

**INSTRUCTIONS TO CANDIDATES**

- This question paper consists of 2 parts:
  - PART A (70 marks) : SEVEN (7) short answer questions. Answer ALL questions in the Answer Booklet provided.**
  - PART B (30 marks) : TWO (2) long answer questions. Answer ALL questions. Answers are to be written in the Answer Booklet provided.**
- Candidates are not allowed to bring any unauthorized materials except writing equipment into the Examination Hall. Electronic dictionaries are strictly prohibited.
- 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.
- 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 = 5 (Including the cover page)**

**PART A : SHORT ANSWER QUESTIONS (70 MARKS)**

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

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**Question 1**

a. Explain about descriptive and inferential statistics. (4 marks)

b. State the differences between quantitative and qualitative variables in statistics and state the examples for each of this variable. (6 marks)

**[Total: 10 marks]**

**Question 2**

The managers of a brokerage firm are interested in finding out if the number of new clients a broker brings into the firm affects the sales generated by the broker. They sample 12 brokers and determine the number of new clients they have enrolled in the last year and their sales amounts in thousands of dollars. These data are presented in the table that follows.

Broker	Clients	Sales
1	27	52
2	11	37
3	42	64
4	33	55
5	15	29
6	15	34
7	25	58
8	36	59
9	28	44
10	30	48
11	17	31
12	22	38

Draw a scatter plot based on the data above.

**[Total: 10 marks]**

**Question 3**

Determine the mean, mode and median score of 70 bowlers who took part in a bowling competition at KB Bowling Centre from the following table.

Score	60-70	70-80	80-90	90-100	100-110	110-120
Number of Bowlers	3	9	15	23	5	15

**[Total: 10 marks]**

#### Question 4

Table below shows the mark obtained in Statistics test by 88 students:

Marks	Number of students
0 up to 10	6
10 up to 20	16
20 up to 30	24
30 up to 40	25
40 up to 50	17

Determine the variance and standard deviation of the marks obtained in Statistics test.

[Total: 10 marks]

#### Question 5

The time  $x$  in years that an employee spent at a company and the employee's hourly pay,  $y$  for 5 employees are listed in the Table 1 below.

X	Y
5	25
3	20
4	21
10	35
15	38

**Table 1: Time employee spent on company and hourly pay**

Calculate the correlation of coefficient,  $r$

[Total 10 marks]

#### Question 6

The file below lists the calories and sugar, in grams, in one serving of seven breakfast cereals:

Cereal	Calories	Sugar
Kellog's All Bran	80	6
Kellog's Corn Flakes	100	2
Wheaties	100	4
Multigrain Flakes	110	4
Kellog's Rice Krispies	130	4
Wheat Vanilla Almond	190	11
Kellog's Mini Wheats	200	10

- a. Compute the covariance.

(9 marks)

- b. Write the conclusions that can be reached about the relationship between calories and sugar based on the answer in (a).

(1 mark)

**[Total: 10 marks]**

**Question 7**

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. State the appropriate null and alternative hypothesis.
- (2 marks)
- b. Complete the table above by finding the value of X, Y and Z. Hence, 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.

(8 marks)

**[Total: 10 marks]**

**PART B : LONG ANSWER QUESTIONS (30 MARKS)**

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

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**Question 1**

An appliance manufacturer claims to have developed a compact microwave oven that consumes a mean of no more than 250 W. From previous studies, it is believed that power consumption for microwave ovens is normally distributed with a population standard deviation of 15 W. A consumer group has decided to try to discover if the claim appears true. They take a sample of 20 microwave ovens and find that they consume a mean of 257.3 W.

Based on the information above,

- a. Write null and alternative hypotheses testing to determine if the manufacturer's claim appears to be reasonable. (2 marks)
- b. Determine the critical value for a test with a level of significance of 0.05. (3 marks)
- c. Hence, calculate the value of the test statistics. (5 marks)

**[Total 10 marks]**

**Question 2**

Table below shows that the interest rate for car loans and the average number of customer who apply for loans in a month from a finance company.

No	Interest (%) ( $x$ )	Number of customer ( $y$ )
1	6.0	80
2	6.2	80
3	6.5	78
4	6.8	75
5	7.0	70
6	7.2	60
7	7.5	60
8	7.8	55
9	8.0	50
10	8.2	48
11	8.4	45
12	8.7	40

Based on the table above, develop the regression equation for these data.

**[Total: 20 marks]**

**END OF EXAM QUESTIONS**