



Private & Confidential

FACULTY OF BUSINESS

FINAL EXAMINATION

Student ID (in Figures) : 

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Student ID (in Words) : \_\_\_\_\_  
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Subject Code & Name : **STA2114 BUSINESS STATISTICS**  
Trimester& Year : January – April 2021  
Lecturer/Examiner : Suhada Binti Ishak  
Duration : 3 Hours

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**INSTRUCTIONS TO CANDIDATES**

1. This question paper consists of 2 parts:  
PART A (30 marks) : THIRTY (30) multiple choice questions. Answer ALL questions. Please write your answers clearly in a SEPARATE sheet.  
PART B (70 marks) : FOUR (4) problem solving questions. Answer ALL questions. Answers are to be written in the SEPARATE sheet.
2. Only ballpoint pens are allowed to be used in answering the questions.
3. Students must SCAN and UPLOAD the answers in CN by using PDF format.
4. All answers must be submitted in ONE file only.

**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 = 10 (Including the cover page)**

**PART B : PROBLEM SOLVING QUESTIONS (70 MARKS)**

**INSTRUCTION(S)** : **FOUR (4)** problem solving questions. Answer **ALL** questions. Answers are to be written in the **SEPARATE SHEET**.

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**Question 1**

Accuracy in taking orders at drive-through window is important for fast food restaurants. Periodically, The Star newspaper publishes “The Drive-Thru Performance Study: Order Accuracy” that measures the percentage of orders that are filled correctly. In January 2021, the percentage of orders filled correctly at Mc Donald’s was approximately 79.6%. Suppose that you go to the drive-through window at Mc Donald’s and place an order. 4 friends of yours independently place orders at the drive-through window at the same Mc Donald’s. Compute the probabilities that

- a. All five of the orders will be filled correctly. (2 marks)
- b. None of the orders will be filled correctly. (2 marks)
- c. At least 4 of the orders will be filled correctly. (4 marks)
- d. Compute the mean and standard deviation of the binomial distribution for the number of orders filled correctly. (2 marks)

**[Total: 10 marks]**

**Question 2**

- a. Suppose you are working with a data set that is normally distributed, with mean of 200 and standard deviation of 47. Determine the value of  $x$  if 70% of the values are greater than  $x$ . (4 marks)
- b. The Malaysian Environmental Protection Agency publish figures on solid waste generation in Malaysia. In one year, the average of waste generated per person per day was 3.58 pounds. Suppose the daily amount of waste generated per person is normally distributed, with standard deviation of 1.04 pounds, compute the value of  $x$  if 67.72% would be greater than the daily amounts of waste generated per person. Interpret the value of  $x$  obtained. (5 marks)

- c. The manager of a paint supply store wants to determine whether the mean amount of paint contained in 1 gallon cans purchased from a nationally known manufacturer is actually 1 gallon. From the manufacturer's specifications, the standard deviation of the amount of paint is 0.03 gallon. 45 random sample of cans selected, and the mean amount of paint per 1 gallon can is 0.994.
- Identify the evidence that the mean amount is different from 1 gallon. (Use 0.05 level of significance). (7 marks)
  - Determine the  $p$ -value and interpret its meaning. (4 marks)

**[Total: 20 marks]**

### Question 3

Nawal's Apparel wants to forecast annual sales for all new stores, based on the number of profiled customers who live no more than 30 minutes from Nawal's Apparel store. To examine the relationship between the number of profiled customers (in millions), who live within a fixed radius from Nawal's Apparel's Store and its annual sales (RM millions), data were collected from a sample of 14 stores. Table shows the organized data.

Store	Profiled Customers (Millions)	Annual Sales (RM millions)
1	3.7	5.7
2	3.6	5.9
3	2.8	6.7
4	5.6	9.5
5	3.3	5.4
6	2.2	3.5
7	3.3	6.2
8	3.1	4.7
9	3.2	6.1
10	3.5	4.9
11	5.2	10.7
12	4.6	7.6
13	5.8	11.8
14	3	4.1

- Assuming a linear relationship between Profiled Customers and Annual Sales, use the Least-Square Method to find the regression coefficients  $b_0$  and  $b_1$ . (10 marks)
- Predict the annual sales when the value of profiled customers is 2.9million. (2 marks)
- Determine the coefficient of determination,  $r^2$ , and interpret its meaning. (8 marks)

**[Total: 20 marks]**

#### Question 4

A study reported that 48% of 16-to 29- year –olds, 42% of 30-to 49- year –olds, 34% of 50-to 64- year –olds preferred to use the social media as the medium of communication. Supposed that the study was based on a sample size of 200 respondents in each group.

- a. Construct the contingency table based on the information given. (4 marks)
- b. Compute the expected frequencies for each cell. (6 marks)
- c. Compute  $\chi^2_{STAT}$  . Is there evidence of a significance difference among the age groups with respect to the proportion who preferred to use media social as the medium of communication? (Use  $\alpha = 0.05$ )

(10 marks)

**[Total: 20 marks]**

**END OF EXAM PAPER**