



Private & Confidential

FACULTY OF BUSINESS

FINAL EXAMINATION

Student ID (in Figures) :

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Student ID (in Words) : _____

Subject Code & Name : **STA2114 BUSINESS STATISTICS**
Trimester& Year : January – April 2022
Lecturer/Examiner : Suhada Binti Ishak
Duration : 3 Hours

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 = 11 (Including the cover page)

PART B
INSTRUCTION(S)

: PROBLEM SOLVING QUESTIONS (70 MARKS)

: FOUR (4) problem solving questions. Answer **ALL** questions. Answers are to be written in the Answer Booklet provided.

Question 1

- a. The owner of a fish market determined that the mean weight for a catfish is 3.2 pounds with a standard deviation of 0.8 pound. Assuming the weights of catfish are normally distributed, compute the probability that a randomly selected catfish
- i. will weigh more than 4.4 pounds (2 marks)
 - ii. will weigh between 3 and 5 pounds (3 marks)
 - iii. A citation catfish should be one of the top 2% in weight, determine the weight (in pounds) should the citation designation be established. (4 marks)
- b. A quality control engineer is interested in the mean length of sheet insulation being cut automatically by machine. The desired mean length of the insulation is 12 feet. It is known that the standard deviation in the cutting length is 0.15 feet. A sample of 70 cut sheets yields a mean length of 12.14 feet. This sample will be used to obtain a 99% confidence interval for the mean length cut by machine.
- i. Determine the critical value to use in obtaining the confidence interval. (2 marks)
 - ii. Perform a test to identify the confidence interval for this problem. (4 marks)

[Total: 15 marks]

Question 2

One of the biggest issues facing e-retailers is the ability to turn browsers into buyers. This is measured by the conversion rate, the percentage of browsers who buy something in their visit to a site. The conversion rate for a company's website was 10.1%. The website at the company was redesigned in an attempt to increase its conversion rates. A sample of 200 browsers at the redesigned site was selected. Suppose that 24 browsers made a purchase. The company officials would like to know if there is evidence of an increase in conversion rate at the 5% level of significance.

- a) Determine the parameter the company officials is interested in. (3 marks)
- b) State the null and alternative hypothesis for this study. (2 marks)
- c) Identify the critical value should the company officials use to determine the rejection region. (2 marks)
- d) Analyze whether the company officials can conclude that there is sufficient evidence that the conversion rate at the company's website has increased using a level of significance of 0.05. (8 marks)

[Total: 15 marks]

Question 3

The director of transportation of a large company is interested in the usage of her van pool. She considers her routes to be divided into local and non-local. She is particularly interested in learning if there is a difference in the proportion of males and females who use the local routes. She takes a sample of a day's riders and finds the following:

	Male	Female	Total
Local	27	44	71
Non-Local	33	25	58
Total	60	69	129

She will use this information to perform a chi-square hypothesis test using a level of significance of 0.05.

- a) Construct the expected cell frequency for the above data. (6 marks)
- b) Identify the critical value of this test. (1 mark)
- c) Determine the value of test statistics of this test. (6 marks)
- d) Write the conclusion for this test. (2 marks)

[Total: 15 marks]

Question 4

A candy bar manufacturer is interested in trying to estimate how sales are influenced by the price of their product. To do this, the company randomly chooses 6 small cities and offers the candy bar at different prices. Using candy bar sales as the dependent variable, the company will conduct a simple linear regression on the data below:

<u>City</u>	<u>Price (\$)</u>	<u>Sales</u>
River Falls	1.30	100
Hudson	1.60	90
Ellsworth	1.80	90
Prescott	2.00	40
Rock Elm	2.40	38
Stillwater	2.90	32

- a) Determine the estimated slope for the candy bar price and sales data. (7 marks)
- b) Compute the coefficient of correlation for these data. (9 marks)
- c) Calculate the standard error of the estimate, S_{yx} , for the data (7 marks)
- d) If the price of the candy bar is set at \$2, predict the estimated mean sales will be. (2 marks)

[Total: 25 marks]

END OF EXAM PAPER