



Private & Confidential

FACULTY OF BUSINESS

FINAL EXAMINATION

Student ID (in Figures) : 

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Student ID (in Words) : \_\_\_\_\_  
\_\_\_\_\_

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

---

**INSTRUCTIONS TO CANDIDATES**

- 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.**
- Candidates are not allowed to bring any unauthorized materials except writing equipment and scientific calculator 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 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 = 10 (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 SEPARATE SHEET.**

---

**Question 1**

- a. The number of column inches of classified advertisements appearing on Mondays in a certain daily newspaper is normally distributed with population mean of 320 and population standard deviation of 20 inches. Compute
- i. The probability there will be less than 340 column inches of classified advertisement. (4 marks)
  - ii. There will be between 280 and 360 column inches of classified advertisement. (5 marks)
  - iii. Compute the value of column inches of classified advertisements for a randomly probability is less than 0.1. (6 marks)
- b. The mean selling price of new homes in a small town over a year was \$115,000. The population standard deviation was \$25,000. A random sample of 100 new home sales from this city was taken. Calculate
- i. The probability that the sample mean selling price was more than \$110,000. (5 marks)
  - ii. The probability that the sample mean selling price was between \$113,000 and \$117,000. (5 marks)

**[Total: 25 marks]**

**Question 2**

To become an actuary, it is necessary to pass a series of 10 exams, including the most important one, an exam in probability and statistics. An insurance company wants to estimate the mean score on this exam for actuarial students who have enrolled in a special study program. They take a sample of 8 actuarial students in this program and determine that their scores are: 2, 5, 8, 8, 7, 6, 5, and 7. This sample will be used to calculate a 90% confidence interval for the mean score for actuarial students in the special study program.

- a) Determine the mean and the standard deviation of the sample. (5 marks)
- b) Identify the critical value used in constructing a 90% confidence interval. (2 marks)

- c) Compute a 90% confidence interval for the mean score of actuarial students in the special program.

(8 marks)

**[Total: 15 marks]**

### Question 3

A computer used by a 24-hour banking service is supposed to randomly assign each transaction to one of 5 memory locations. A check at the end of a day's transactions gave the counts shown in the table to each of the 5 memory locations, along with the number of reported errors.

<u>Memory Location:</u>	1	2	3	4	5
Number of Transactions:	82	100	74	92	102
Number of Reported Errors	11	12	6	9	10

The bank manager wanted to test whether the proportion of errors in transactions assigned to each of the 5 memory locations differ.

- a) Find the critical value of the test statistic at 1% level of significance. (2 marks)
- b) Calculate the value of the test statistic. Show all the working steps needed. (15 marks)
- c) Write the conclusion for this test. (3 marks)

**[Total: 20 marks]**

### Question 4

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) Identify the parameter the company officials is interested in. (2 marks)
- b) State the null and alternative hypothesis for this study. (2 marks)

c) State the critical value should the company officials use to determine the rejection region?

(1 mark)

d) Analyze whether the company can conclude that there is evidence of an increase in conversion rate at the 5% level of significance.

(5 marks)

**[Total: 10 marks]**

**END OF EXAM QUESTIONS**