Private & Confidential

FACULTY OF BUSINESS

FINAL EXAMINATION

Student ID (in Figures) :														

Student ID (in Words) : _____

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Subject Code & Name : **STA2114 BUSINESS STATISTICS**
Trimester& Year : May – August 2021
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 = 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 Answer Booklet provided.

Question 1

a. The AMS technical services department has embarked on a quality improvement effort. It's first project relates to maintaining the target upload speed for its Internet service subscribers. Upload speeds are measured on a standard scale in which the target value is 1.0. Data collected over the past year indicate that the upload speed is approximately normal distributed with mean of 1.005 and a standard deviation of 0.10. Each day, one upload speed is measured. The upload speed is considered acceptable if the measurement on the standard scale between 0.95 and 1.05.

Assuming that the distribution has not changed from what it was in the past year, compute the probability that the upload speed is

i. Less than 1.0?
ii. Between 1.0 and 1.05?
iii. Determine value of X, if 98.5% less than X.

Draw the normal curve for each of the question to illustrate the problem.

(10 marks)

b. A Washington, D.C., "think tank" announces the typical teenager sent 67 text messages per day in 2017. To update that estimate, you phone a sample of 12 teenagers and ask them how many text messages they sent the previous day. Listed below were the responses:

51	175	47	49	44	54
145	203	21	59	42	100

At the 0.05 level, determine the evidence that the mean number is greater than 67.

(10 marks)

Question 2

A research firm surveyed 49 randomly selected Americans to determine the mean amount spent on coffee during 1 week. The sample mean was $20 per week. The population distribution is normal with a standard deviation of $5.

a. Compute the point estimate of the population mean. Explain what it indicates.

(2 marks)

b. Using the 95% level of confidence, determine the confidence interval for μ. Explain the value obtained.

(8 marks)

[Total: 10 marks]

Question 3

Most companies consider Big Data analytics among small (< 100 employees), mid-sized (100-999 employees), and large (1,000+ employees) companies in the proportion of companies that have already deployed Big Data projects. A study showed results for the different company sizes.

Have already deployed Big Data project	Company Size		
	Small	Mid-Sized	Large
Yes	9%	37%	26%
No	91%	63%	74%

Assume that 200 decision makers involved in Big Data purchases within each company size were surveyed.

a. Construct the contingency table based on the information given.

(4 marks)

b. Compute the expected frequencies for each cell.

(6 marks)

c. Compute χ^2_{STAT} . Is there any evidence of a significance difference among the Company size to the proportion of companies that have already deployed Big Data projects? Use $\alpha = 0.05$.

(10 marks)

[Total: 20 marks]

Question 4

You are given the following sample data for variables x and y:

x	1	7	3	8	11	5	4
y	16	50	22	59	63	46	43

i. Construct a scatter plot for these data and describe what, if any, relationship appears to exist. (5 marks)

ii. Compute the regression equation based on these sample data. (10 marks)

iii. Calculate the regression coefficient of determination and interpret the value. (5 marks)

[Total: 20 marks]

END OF EXAM PAPER