

FINAL
Alternative Assessment

(COVER PAGE)

Session : April 2022

Programme : Foundation in Business Information Technology (CFPI)

Course : STA1203: Business Statistics

Date of Examination : 2 August 2022 (Tuesday)

Time : 9:00am – 11:30am Reading Time : Nil

Duration : 2 hours + 30 minutes (uploading time)

Special Instructions :

This paper consists of **FIVE (5)** structured-type questions.

Answer **ALL** the questions handwritten showing all steps in either **BLUE/BLACK** ink on A4 papers.

Then, upload the answers (**PDF FORMAT in ONE file**) to Blackboard.

Materials permitted :

Non-programmable calculator

Materials provided :

Formula Sheet

Examiner(s) : Mr. Goh Chok Huat

Chief Moderator : Ms. Teng Mei Tuan

This paper consists of 6 printed pages, including the cover page.

FOUNDATION IN BUSINESS INFORMATION TECHNOLOGY PROGRAMME (CFPI)
STA1203: BUSINESS STATISTICS
FINAL ALTERNATIVE ASSESSMENT: APRIL 2022 SESSION

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Question 1

- (a) Determine whether each of the following variables is quantitative or qualitative. If it is quantitative, further classify it as continuous or discrete. If it is qualitative, further classify it as ordinal or nominal.
- (i) The time taken by students to travel from home to INTI International College Penang. (2 marks)
 - (ii) The number of Malaysians who have taken covid-19 booster shot. (2 marks)
 - (iii) The brand of mobile phones used by students. (2 marks)
- (b) Given the following sample data:
- 3, 4, 4, 5, 7, 8, 9, 38.
- (i) Find the mean, median and standard deviation. (5 marks)
 - (ii) Which one is a more suitable measure of central tendency for the above data? Justify. (1 mark)

- (c) The following table gives a two-way classification of 30 biscuits in a box.

	Wrapped in gold foil	Unwrapped
Chocolate-covered	8	11
Non chocolate-covered	4	7

A biscuit is chosen randomly from the box. Find the probability that

- (i) the biscuit is unwrapped, (2 marks)
- (ii) the biscuit is chocolate-covered or wrapped in gold foil, (2 marks)
- (iii) the biscuit is unwrapped and chocolate-covered, (2 marks)
- (iv) the biscuit is non chocolate-covered, given that the biscuit is wrapped in gold foil. (2 marks)

Question 2

The table below shows the duration (in minutes) taken by 100 students to solve a particular Mathematics question in an examination.

Duration (minutes)	Number of students
10 but less than 15	6
15 but less than 20	25
20 but less than 25	45
25 but less than 30	18
30 but less than 35	6

- (a) Calculate the percentage of students who take less than 30 minutes to solve the Mathematics question. (2 marks)
- (b) Calculate the sample mean and standard deviation. (8 marks)
- (c) Calculate median. (4 marks)
- (d) Draw the histogram on a graph paper and estimate the mode. (6 marks)

Question 3

- (a) In the long run 40% of patients treated for a particular disease with the drug Ivermectin are cured. If a doctor were to treat 10 randomly chosen patients with the drug, without using a Binomial table,
- (i) find the probability that exactly 7 are cured. (2 marks)
 - (ii) find the probability that less than 2 are cured. (3 marks)
 - (iii) find the probability that 6 are not cured. (3 marks)
 - (iv) calculate the mean and variance of the number of cures in this group of 10 patients. (2 marks)

- (b) The following table gives the probability distribution of the number of books purchased per hit by Amazon.com shoppers.

Number of books	0	1	2	3	4	5
Probability	0.35	0.2	0.2	0.1	0.1	0.05

- (i) Find the probability of an Amazon.com visitor buying more than 3 books per hit. (1 mark)
 - (ii) Find the mean and variance of the number of books purchased per hit. (5 marks)
- (c) The number of accidents occurred in a highway each week is Poisson distributed with a mean of 3.2. Without using a Poisson table, find the probability that there are more than one accidents occurred in 2 weeks. (4 marks)

Question 4

- (a) A manufacturer plans to launch a new tyre model whose life span is normally distributed with mean 40,000 km and standard deviation 4,000 km.
- (i) If a tyre is chosen at random, what is the probability that the tyre can be used for not more than 50,000 km?
(3 marks)
- (ii) If a tyre is chosen at random, what is the probability that the tyre can be used for more than 42,000 km?
(3 marks)
- (iii) If a tyre is chosen at random, what is the probability that the tyre can be used for 30,000 km to 45,000 km?
(3 marks)
- (iv) The company guarantees to replace the tyres which last less than k km. Calculate the value of k if the company is prepared to replace only one percent of the tyres sold.
(6 marks)
- (b) A die is known to be biased in such a way that, when it is thrown, the probability of a 3 showing is $3/4$. This biased die and an ordinary fair die are thrown. Find the probability that
- (i) the fair die shows a 3 and the biased die does not show a 3.
(2 marks)
- (ii) at least one of the two dice shows a 3.
(3 marks)

Question 5

Shindy is an undergraduate business major studying at a local college. She wants to conduct a study on Grade Point Average (GPA) and the level of income a person can earn in the future. Below are the data that she managed to collect from business school graduates.

GPA	Income (RM'000)
3.2	36
3.0	32
2.8	30
3.5	39
3.8	44
3.1	35
2.5	24
3.6	47
3.3	37

- (a) Calculate the correlation coefficient and comment. (6 marks)
- (b) Calculate the coefficient of determination and comment. (4 marks)
- (c) Determine the least squares regression equation of income on GPA. (4 marks)
- (d) Interpret the gradient of the regression equation. (2 marks)
- (e) Estimate the income when the GPA is 2.9. Comment on the reliability of the estimate. (4 marks)

~THE END~

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