



INTI
International College Penang

FINAL
Examination Paper

(COVER PAGE)

Session : AUGUST 2018

Programme : FOUNDATION IN BUSINESS INFORMATION TECHNOLOGY

Course : **STA1203 : BUSINESS STATISTICS**

Date of Examination : 6 December 2018 (Thursday)

Time : 11:00AM – 1:00PM Reading Time : Nil

Duration : 2 Hours

Special Instructions :

This paper consists of **SIX (6)** questions. Answer any ^{FIVE (5)} ~~FOUR (4)~~ questions in the answer booklet provided. All questions carry equal marks.

Materials permitted :

Non-programmable calculator

Materials provided :

Formulae Booklet 2 & Graph papers

Examiner(s) : **Bark Chee Beng**

Moderator : **Dr. Ch'ng Pei Eng**

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

INTI INTERNATIONAL COLLEGE

FOUNDATION IN BUSINESS INFORMATION TECHNOLOGY (CFPI)

STA1203 : BUSINESS STATISTICS

FINAL EXAMINATION: AUGUST 2018 SESSION

Instructions: This paper consists of **SIX (6)** questions. Answer any **FIVE (5)** questions in the answer booklet provided. All questions carry equal marks.

Question 1

- (a) The following is the data set of number of false alarms set-off each week for a 24-week period in a city.

10	5	7	8	4	7	9	2	6	13	11	8
2	6	5	13	9	7	5	1	13	5	15	3

- (i) Construct a frequency distribution table, using 1-3 for first class, 4-6 for second class, and so on. Use tally marking in the preparation. (5 marks)
- (ii) Calculate the relative frequencies and percentages for all classes. (4 marks)
- (iii) What percentage of these weeks had 9 or fewer false alarms? (2 marks)
- (iv) Draw the frequency histogram. Comment on the distribution. (5 marks)
- (b) Consider the following stem-and-leaf display :

0	5
1	1 5 6
2	2 7
3	1 5 7 8
4	3 3 4 5 9
5	3 6 8
6	4 4 4 7 9
7	
8	5 6

Key : 2 | 2 means 22

- (i) Find the mode and median of the data. (2 marks)
- (ii) Write the data set that is represented by the display. (2 marks)

Question 2

(a) Give an example of your own to describe or explain each of the following terms below.

(i) Quantitative Variable versus Qualitative Variable. (2 marks)

(ii) Discrete Variable versus Continuous Variable. (2 marks)

(b) The following data set is the three-month weight loss (in kg) for a sample of 15 adults. :

0	5	3	8	6	3	12	8	9	16	8	0	4	6	2
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(i) Find the mean, median, and mode of the weight loss. (4 marks)

(ii) Calculate the range, variance and standard deviation of the weight loss. (5 marks)

(c) A fair die is tossed twice. Find the probability that

(i) both are 3, (1 mark)

(ii) one is 3 and another one is 6, (3 marks)

(iii) the sum of the tosses are 6, (3 marks)

Question 3

(a) A random variable X has the following probability distribution :

x	-3	2	6	8
$P(X=x)$	0.3	0.2	0.4	0.1

Find

(i) $P(X > 0)$, (2 marks)

(ii) $P(X \geq 2)$, (2 marks)

(iii) $P(2 \leq X \leq 5)$, (2 marks)

(iv) the mean and standard deviation of X . (6 marks)

- (b) The following table lists the joint probabilities of achieving Grades of A and not achieving A's in two MBA courses (statistics and marketing).

	Achieve a Grade of A in marketing	Does not achieve a Grade of A in marketing
Achieve a Grade of A in statistics	0.06	0.13
Does not achieve a Grade of A in statistics	0.23	0.58

- (i) What is the probability that a student achieves a grade of A in marketing? (1 mark)
- (ii) What is the probability that a student achieves a grade of A in marketing and does not achieve a grade of A in statistics? (1 mark)
- (iii) What is the probability that a student achieve a grade of A either in marketing or in statistics? (3 marks)
- (iv) Are events selecting A in marketing and selecting A in statistics independent? Explain. (3 marks)

Question 4

- (a) Suppose that there are 100 students in your mathematics class, of whom 10 are left-handed. Two students are selected at random.
- (i) Draw a probability tree and insert the probability for each branch. (3 marks)
- (ii) Find the probability that both are right-handed. (2 marks)
- (iii) Find the probability that one is right handed and the other is left-handed. (4 marks)
- (b) It is known that 70% of the residents of a city like to watch a particular TV program. In a survey, 30 residents in that city were randomly sampled, and asked if they like the particular TV program.
- (i) State the binomial distribution applicable to this problem. (3 marks)
- (ii) What is the probability that exactly 25 residents will like the TV program? (2 marks)

- (iii) What is the probability that more 28 residents will like the TV program? (4 marks)
- (iv) What is the expected number of residents like the TV program? (2 marks)

Question 5

The frequency distribution of the mathematics score of 60 students in a school is listed in the table below:

Score	No. of students
30-39	12
40-49	16
50-59	14
60-69	8
70-79	10

- (i) Calculate the sample mean and standard deviation of the score of the sample. (7 marks)
- (ii) Draw the cumulative frequency polygon for the above data. (5 marks)
- (iii) Using the cumulative frequency polygon, estimate the median, Q1 and Q3. Hence, calculate the interquartile range. (8 marks)

Question 6

- (a) The time taken by the milkman to deliver to a school is normally distributed with a mean of 12 minutes and a standard deviation of 2 minutes. He delivers milk everyday. Find the probability that in a particular day, the milkman will take
- (i) less than 14 minutes to deliver the milk to school, (3 marks)
- (ii) between 9 and 13 minutes to deliver the milk to the school. (5 marks)
- (b) A car service center is interested to investigate the relationship between the age of car (x , in years) and the cost of maintenance (y , in RM) for a particular popular car model. The manager randomly selected eight cars that recently sent for maintenance. The following information on the ages and maintenance cost of these cars.

Age (years), x	7	3	5	8	2	6	3
Cost (RM), y	1,530	450	780	1,680	320	1,260	390

- (i) Calculate the coefficient of correlation between the age of cars and the maintenance costs. Comment on your answer. (7 marks)
- (ii) Find the equation of the linear regression line that can be used to estimate the cost of a given car's age. (5 marks)

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