INTI
INTERNATIONAL COLLEGE PENANG (507232-U)
LAUREATE INTERNATIONAL UNIVERSITIES

FINAL
Examination Paper

(COVER PAGE)

Session : AUGUST 2016

Programme : FOUNDATION IN BUSINESS INFORMATION TECHNOLOGY

Course : STA1203: BUSINESS STATISTIC

Date of Examination : 6 December 2016 (Tuesday)

Time : 11:00am - 1:00pm Reading Time : Nil

Duration : 2 Hours

Special Instructions :

This paper consists of **SIX (6)** questions.

Answer any **FIVE (5)** questions in the answer booklet provided.

All questions carry equal marks.

Materials permitted :

Scientific Calculator (Model fx570 Series)

Materials provided :

Formula Booklet 2 (Formulas for Statistics)

Examiner(s) : **Fang Yen Yen**

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

This paper consists of 7 printed pages, including the cover page.

INTI INTERNATIONAL COLLEGE PENANG
FOUNDATION IN BUSINESS INFORMATION TECHNOLOGY (CFPI)
STA1203 : BUSINESS STATISTICS
FINAL EXAMINATION: AUGUST 2016 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 waiting times for a random sample of 50 customers who visited Pizza Hut Shop are recorded. The following table gives the frequency distribution of waiting times (in minutes) for these customers.

Waiting Time	f
10 to less than 16	6
16 to less than 22	10
22 to less than 28	15
28 to less than 34	11
34 to less than 40	7
40 to less than 46	1

(i) Find the sample mean and standard deviation of the waiting times (in minutes). (5 marks)

(ii) Construct a histogram for the data given. Estimate mode from the graph. (5 marks)

(iii) Compute the median. (5 marks)

(b) Define the meaning of population, sample and random sample. (5 marks)

Question 2

(a) The following data represent the ages of 15 people buying lift tickets at a ski area.

15 25 26 17 38 16 75 21 30 57 28 40 20 33 31

(i) Find the mean, standard deviation, mode and median of these data. (7 marks)

(ii) From (i) above, calculate the coefficient of skewness.
Hence, comment on the distribution.
(4 marks)

(b) A bag contains 8 blue and 4 yellow balls. Two balls are taken randomly at a time from the bag. Find the probability that both balls are yellow if

(i) Replacement is not allowed.
(3 marks)

(ii) Replacement is allowed.
(3 marks)

(c) Given $Z \square N\left(0,1^2\right)$. Find the $P(Z>1.5)$. (3 marks)

Question 3

(a) The probability of that it will rain in a particular morning is $\frac{1}{7}$. If it rains, the probability Ali takes bus to work is $\frac{5}{6}$, and if does not rain, the probability that Ali takes bus to work is $\frac{1}{4}$.

(i) Draw a tree diagram to illustrate all the possible outcomes.

(4 marks)

(ii) Find the probability that in a particular morning, it will rain and Ali does not take bus to work.

(4 marks)

(iii) Find the probability that in a particular morning, Ali will take bus to work.

(4 marks)

(iv) It is known that in a particular morning, Ali took a bus to work. What is the probability that it was raining that particular morning.

(4 marks)

(b) Define the meaning of probability and random variable. (4 marks)

Question 4

(a) The life of battery is known to be normally distributed with a mean of 1100 days and a standard deviation of 50 days. Estimate the probability that a randomly selected battery will survive

(i) More than 950 days,

(4 marks)

(ii) Between 1000 days and 1500 days.

(4 marks)

(iii) No more than 950 days

(2 marks)

(b) The sum of the results of the test, given to 50 students in each group are summarized as follows:

Mathematics	Sciences
$\sum x_1 = 5900$	$\sum x_2 = 5750$

Is the average score on standardized test of students who major in Mathematics is greater than that of students who major in Sciences?

(5 marks)

(c) The probability distribution of discrete random variable X is shown in the table below :

x	-1	0	3	5
$P(X=x)$	0.13	0.25	p	0.30

(i) Find the value of p.

(2 marks)

(ii) Calculate the mean of X.

(3 marks)

Question 5

(a) The discrete random variable X has the following probability distribution.

x	1	3	5	7
$P(X = x)$	0.3	a	b	0.25

(i) Write down an equation satisfied by a and b. (3 marks)

(ii) Given that $E(X) = 4$, find a and b. (5 marks)

(iii) By using the values of a and b, calculate the standard deviation of X. (4 marks)

(iv) Find $V(3X - 5)$ (3 marks)

(v) Find $P(1 < X < 3)$ (2 marks)

(b) Give three examples of continuous random variable. (3 marks)

Question 6

(a) Data about employment for males and females in a small rural area are shown in the table.

	Unemployed	Employed
Male	206	412
Female	358	305

A person from this area is chosen at random. Let M be the event that the person is male, and let E be the event that the person is employed.

(i) Find $P(M)$ (1 marks)

(ii) Find $P(M \text{ and } E)$ (1 marks)

(iii) Are M and E independent events? Justify your answer. (3 marks)

(iv) Given that the person chosen is unemployed, find the probability that the person is female. (4 marks)

(b) The probability that a visitor to a computer shop will buy a computer is 0.38. If 8 people have visited the shop at a particular period, find the probability that

(i) exactly 5 units of computers are sold,

(2 marks)

(ii) less than 6 units of computers are sold.

(4 marks)

(c) The following table shows speed (km/h) of 100 cars that pass a new road during a particular time period:

Speed (km/h)	Number of cars
55 – 59	4
60 – 64	29
65 – 69	33
70 – 74	20
75 – 79	9
80 – 84	5

Draw a cumulative frequency polygon for the data given. Estimate the median from the graph.

(5 marks)

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