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

FINAL
Examination Paper

(COVER PAGE)

Session	:	August 2012
Programme	:	Foundation In Business Information Technology (CFP)
Course	:	STA1202 : STATISTICS
Date of Examination	:	14 December 2012
Time	:	8a.m. – 10a.m. 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 :

Non-Pragrammable Scientific Calculator

Materials provided :

Graph Paper/ Formula Booklet 2

Examiner(s) : **Yap Gim Ley**

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

This paper consists of 5 printed pages, including the cover page.

INTI INTERNATIONAL COLLEGE PENANG

FOUNDATION IN BUSINESS INFORMATION TECHNOLOGY
STA1202: STATISTICS
FINAL EXAMINATION: AUGUST 2012 SESSION

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

Question 1 (20 marks)

The following data give the total number of iPods® sold by a mail order company on each of 30 days.

8	25	11	15	29	22	10	5	17	21	22	13	26	16	18
12	9	26	20	16	23	14	19	23	20	16	27	16	21	14

(a) Construct a frequency distribution table. Use the following classes: 5-9, 10-14, 15-19, 20-24, and 25-29. (3 marks)

(b) Prepare a cumulative frequency distribution and draw an ogive. (6 marks)

(c) From the ogive in part (b), find the number of days with less than 14 iPods sold. (2 marks)

(d) Calculate the mean and standard deviation for the grouped data in part (a). (9 marks)

Question 2 (20 marks)

(a) A survey is taken among customers at a fast food restaurant that sells hamburger and chickenburger. In a sample size of 200, 125 were male. Of the males, 85 preferred hamburger. 120 of the sample preferred hamburger and 80 preferred chickenburger.

(i) Copy the following table and write the missing values based on the above information.

	Preferred Hamburger	Preferred Chickenburger	Total
Males			
Females			
Total			200

(4 marks)

(ii) If a female is selected, what is the probability that she prefers chickenburger? (2 marks)

(iii) Suppose two individuals are randomly selected. What is the probability that both prefer hamburger? (3 marks)

(iv) Are the events 'male' and 'hamburger' independent? Justify your answer. (4 marks)

(b) The standard time for the motor mechanics of a large firm to perform a routine service of a car is normally distributed with a mean of 1 hour and a standard deviation of 20 minutes. Find the probability that a randomly selected car will take longer than 70 minutes. (7 marks)

Question 3 (20 marks)

(a) A bag contains six red and four green counters. Two counters are drawn, without replacement.

(i) Draw a tree diagram for the above information. (3 marks)

(ii) Find the probability that both counters are red. (3 marks)

(iii) Find the probability that just one counter is red. (3 marks)

(iv) Find the probability that at least one counter is red. (2 marks)

(b) A fair dice is thrown once. The random variable X is related to the number N thrown on the dice as follows: If N is even, then X is $\frac{1}{2}N$; otherwise X is $2N$.

(i) Show that $P(X = 1) = \frac{1}{6}$. (1 mark)

(ii) Tabulate the probability distribution of X. (8 marks)

Question 4 (20 marks)

(a) The discrete random variable X takes the values 1, 2, 3, 4 and 5 only, with the probabilities shown in the table.

x	1	2	3	4	5
$P(X = x)$	a	0.3	0.1	0.2	b

(i) Given that $E(X) = 2.34$, show that $a = 0.34$, and find the value of b. (6 marks)

(ii) Find $Var(X)$. (4 marks)

(b) Two events A and B are such that $P(A) = \frac{3}{4}$, $P(B|A) = \frac{1}{5}$ and $P(B'|A') = \frac{4}{7}$. Find

(i) $P(A \cap B)$ (3 marks)

(ii) $P(A \cup B)$ (4 marks)
Hint: $P(B' \cap A') = P(A \cup B)'$

(iii) $P(B)$ (3 marks)

Question 5 (20 marks)

(a) In a multiple choice test there are 10 questions and for each question, there is a choice of 4 answers, only one of which is correct. If a student guesses at each of the answers,

(i) find the probability that he gets none correct, (4 marks)

(ii) find the probability that he gets more than 7 correct. (4 marks)

(iii) find the expected number of questions guessed correctly and the standard deviation. (4 marks)

(b) A study has shown that 20% of all college textbooks have a price of RM100 or higher. It is known that the standard deviation of the prices of all college textbooks is RM7.50. Suppose the prices of all college textbooks have a normal distribution. What is the mean price of all college textbooks? Leave your answer to the nearest RM. (8 marks)

Question 6 (20 marks)

(a) A household receives an average of 1.8 pieces of junk mail per day.

(i) Find the probability that this household will receive exactly 3 pieces of junk mail on a certain day. (3 marks)

(ii) Find the probability that at least one piece of junk mail is received on a certain day. (3 marks)

(iii) Find the mean and standard deviation of the distribution. (3 marks)

(b) Given the following raw data,

44	42	37	51	30	53	60	47	48
53	71	49	33	79	67	46	67	56

(i) Construct a stem-and-leaf diagram. (3 marks)

(ii) Find the mean, mode (or modes), median and range for this data set. (7 marks)

(iii) Comment on the skewness of the distribution of this data set. (1 mark)

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STA1202(F)/August12/ygl/020812