INTI
International College Subang
LAUREATE INTERNATIONAL UNIVERSITIES

RESIT
Examination Paper

(COVER PAGE)

Session	:	**January 2013**
Programme	:	Diploma In Information And Communication Technology (DICTN)
Course	:	**ICT1103 : Structured Programming**
Date of Examination	:	March 4, 2013
Time	:	8:00am – 10:00am Reading Time: Nil
Duration	:	2 Hours
Special Instructions	:	

Answer any **FOUR (4)** questions in the answer booklet provided.

Materials permitted : Nil

Materials provided : Nil

Examiner (s) : **Pawani Rasaratnam,** Annida Said.

Moderator : Dr. Ang Tan Fong

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

INTI INTERNATIONAL COLLEGE SUBANG
INTI INTERNATIONAL COLLEGE PENANG
DIPLOMA IN COMPUTING & INFORMATION TECHNOLOGY PROGRAMME
(DICTN)
ICT 1103: STRUCTURED PROGRAMMING
RESIT EXAMINATION: JANUARY 2013 SESSION

Instructions: This paper consists of **SIX (6)** questions. Answer any **FOUR (4)** questions in the answer booklet provided. All questions carry equal marks.

Question 1

(a) Write the declaration of the following variables :

(i) A variable called *Quality*, with the value 'H'.
(ii) An array named *Colour*, storing "Green", "Blue", "Red" and "Yellow".
(iii) An instance *myBirthday* of the structure *Dates*.
(iv) A pointer named *point*, pointing to a float variable *speed*.

(8 marks)

(b) Assume grade A, B and C are passes, D is re-sit and F is fail. Other grades are invalid. Write a code to read 500 student grades and count the number of pass grades, fail grades, re-sit grades and invalid grades. Then display all of them.

(9 marks)

(c) A laundry shop charges its customer RM5 per kilo of laundry and RM7 per kilo for ironing. Write a program that asks for the laundry weight and if ironing is wanted. Display the total price (including the ironing cost).Example output is as below:

```
Enter the weight of laundry: 12.50
Ironing needed?(0==no, 1==yes): 1

Total laundry cost: RM62.50
Ironing cost: RM87.50
Total: RM150.00
```

(8 marks)

Question 2

(a) Complete the following function that will return the number of characters in a sentence.

```
int length( char *str)
{

}
```

(6 marks)

(b) Trace the output for the following code:

```
int funct1 (int x)
  {
        int y = 0;
        y += x;
  return y;
  }

  void main()
  {
        inta,count;
  for (count =1; count <=5; ++count)
        {
            a = funct1(count);
            cout<<a<<endl;
  }
  }
```

(4 marks)

(c) Evaluate each of the following expression, assuming in each case that ***m*** has the value 24 and ***n*** has the value 7.

(i) m % ++n
(ii) ++m – n- -
(iii) m += (n -= 2)
(iv) m % n++
(v) m % n

(5 marks)

(d) Write a program to calculate and display the rental for an apartment based on the information provided in the table below. The program should read from the user the apartment type (either 1, 2, or 3 bedroom), the number of baths, and number of days rented. If a requested apartment type is not available, set the rental to 0. The user may choose to rent more than one apartment. Your program should display the rental for each apartment as well as the total rent for all the apartments rented.

Type of apartment	1 bath	2 baths
1 bedroom	RM629.00	Not available
2 bedrooms	RM845.00	RM985.00
3 bedrooms	Not available	RM1125.00

(10 marks)

Question 3

(a) Write a program that will determine the number of vowels (A's, E's, I's, O's and U's) in a sentence entered by a user. Treat upper and lower case equally.

(8 marks)

(b) Write a program that asks the user to enter a series of positive integers. When the user types a negative value, the program should display error message and asks for another value. If the user types 0, it means that the series has ended and the program should display the average of all the positive integers provided. If no positive integers is entered, the program displays "No average".

(10 marks)

(c) Trace the output for `myFunction(15,5)`? What is the value that it returns?

```
int myFunction (int m, int n)
{
   int ans;
   if (m < 10)
      if (n < 10)
         ans = m + n;
      else
         ans = myFunction(m, n-2) + n;
   else
      ans = myFunction(m-1, n) + n;
   cout << ans <<"\t";
   return ans;
    }
```

(7 marks)

Question 4

(a) Write a program to read a number, n, and display the sequence below until the *n*th value. Use the recursive function to get the *n*th value.

1, 2, 3, 5, 8, 13, 21, 34,.....

(10 marks)

(b) Write a program to read an array of 10 characters. Then rearrange the array in reverse order and display it. Your code should have at least **TWO (2)** functions, in addition to the main function.

(15 marks)

Question 5

(a) Suppose you want to create a simple payroll system for a sales department with 30 employees. The employees are either salary-based or commission-based. The salary for salay-based employee is RM1800, and the pay of commission-based employee is RM800, plus 5% of monthly sales made.

(i) Define a struct called ***EMPLOYEE*** to store employee initials, employee number, employee type and the pay. Declare an array named *empDetails* to store the details.

(ii) Write the definition of a function called *readEmployInfo()* that receives the array declared above. This function should prompt the user for the information of employee and update the array. Pay will be calculated based on the employee type. The user is allowed to enter as many employee records as he wishes, but the function will prompt the user whenever the array is full and stops reading input.

(iii) Write a function named *showEmpInfo()* that receives the employee array and display its content.

(15 marks)

(b) Write a program to read from an input file called "participants.txt" and extracted the names of those people whose age is below 20. The names are then being written into another file named "teens.txt". Example of the input file is as below :

James	24
Brown	18
Banner	14
Johnson	29
Kent	10

(10 marks)

Question 6

(a) Write TWO (2) program segments separately, using while and for respectively, to control the user's input. User is required to repeat the input unless the input value falls between 0 and 100.

(12 marks)

(b) Write a complete C++ program to sort an array in ascending order using bubble sort algorithm. The array elements is as below:

91, 53, 37, 19, 73

The codes for the sorting should be defined separately in another function outside main() function.

(13 marks)

-The End-