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.
Question 2

Question 1

Instructions: This paper consists of SIX questions. Answer any FOUR (4) questions. All questions carry equal marks.

RETEST EXAMINATION: JANUARY 2O13 SESSION
ICT 1103: STRUCTURED PROGRAMMING

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(b) Trace the output for the following code:

```c
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.

<table>
<thead>
<tr>
<th>Type of apartment</th>
<th>1 bath</th>
<th>2 baths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 bedroom</td>
<td>RM629.00</td>
<td>Not available</td>
</tr>
<tr>
<td>2 bedrooms</td>
<td>RM845.00</td>
<td>RM985.00</td>
</tr>
<tr>
<td>3 bedrooms</td>
<td>Not available</td>
<td>RM1125.00</td>
</tr>
</tbody>
</table>

(10 marks)
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 functions in addition to the main function.

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

Use the recursive function to get the nth value.

Write a program to read a number n and display the sequence below until the nth value.

Question 4

```cpp
int function(int m, int n) {
    if (m > 10)
        return ans;
    else
        ans = function(m-1, n) + ans;

    return ans;
}
```

The output for function(15, 5) is the value that it returns.

(7 marks)

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

(10 marks)

The program displays “No average.” No average displays the average of all the positive integers provided. If no positive integers is entered, display the average value. If the user types 0, it means that the series has ended and the program should stop. If the user types a negative value, the program should display an error message and asks for another sentence entered by a user. Real upper and lower case equally.

Write a program that will determine the number of vowels (a,e,i,o,u) in a sentence entered by a user.

Write a program that will determine the number of vowels (a,e,i,o,u) in a sentence entered by a user.

(8 marks)

(10 marks)

(10 marks)

(10 marks)

(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 salary-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 readEmpInfo() 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-
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