Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER I
SESSION 2014/2015

COURSE NAME	:	COMPUTER PROGRAMMING
COURSE CODE	:	BEC10102
PROGRAMME	:	BEJ/BEV
EXAMINATION DATE	:	DECEMBER 2014/JANUARY 2015
DURATION	:	2 HOURS
INSTRUCTION	:	ANSWER **ALL** QUESTIONS. WRITE **ALL** ANSWERS **USING** BLUE/BLACK INK PEN. ANY ANSWERS WRITTEN IN PENCIL WILL **NOT** BE GRADED.

THIS QUESTION PAPER CONSISTS OF **SIX (6)** PAGES

Q1 (a) State whether the following is a C++ reserved word, valid or invalid identifier.

(i) whatsApp

(ii) Hafiz

(iii) long

(iv) johan-iv

(v) system

(vi) 678pqr

(6 marks)

(b) What is the output of the following program.

```
#include <iostream>
using namespace std;
int main()
{
      int  x, y, z;
      x = 8;
      y = 3;
      x += x-3;
      cout << x << endl;
      z = x % 3;
      cout << z << endl;
      return 0;
 }
```

(5 marks)

(c) Write an equivalent C++ arithmetic expression for the following algebraic expression.

$$v = \frac{m(a_1 - a_2)}{s}$$

(2 marks)

(d) Write a pseudocode algorithm for a program that asks the user to enter a golfer 's score for three games of golf, and then displays the average of the three scores.

(i) Write the pseudocode algorithm.

(6 marks)

(ii) Convert pseudocode Q1(d)(i) to a complete C++ program.

(6 marks)

Q2 (a) Based on the following pseudo code:

```
1. Begin
2. Read A, B
3. If A is less than B
      3.1 BIG = B
      3.2 SMALL = A
4. Else
      4.1 BIG = A
      4.2 SMALL = B
5. Write (Display) BIG, SMALL
6. End
```

(i) Describe its first and second phases of SDM.

(5 marks)

(ii) Analyse the pseudo code and transform it to a graphical notation form.

(6 marks)

(b) Write a *for* loop code that calculates the sum of the first *n* natural numbers. For example, if the number entered is 5, the loop will calculate 1 + 2 + 3 + 4 + 5 = 15.

(8 marks)

(c) Convert the following *for* loop code to a *while* loop code.

```
1. for (int x = 50; x > 0; x--)
2.  {
3.    cout << x << count << "second to go.\n";
4.  }
```

(6 marks)

Q3 (a) With the aid of a diagram, explain the following C++ statement.

```
char s2[4] = "abc";
```

(5 marks)

(b) Based on the code description for (i) to (iii), identify and point out (5) errors in the code. Please note that all codes are related. Assume all required headers are defined correctly.

```
/*(i) declare a constant integer-type named N with
value of 3 */
const int N 3;

/*(ii) declare & initialise an integer-type array
named j with size of N+1 which holds 1, 3, 5, and 9 */
int j[N]= 1, 3, 5, 9;

/*(iii) display all elements of array j in descending
order */
for (i=N, i>=0; i++)
      cout<<i[j];
```

(10 marks)

(c) Fix the errors that you have identify in Q3(b).

(10 marks)

Q4 Answer (a) to (d) based on the following fragment code. Assume all required headers are defined correctly.

```
_____ DetermineInput()
{
   int smallest=0, numA=0, numb=0;
   cout<< "First integer number:";
   cin>>numA;
   cout<< "Second integer number:";
   cin>>numB;
   /*insert function call for GetSmallNumber*/
   cout<< "The smallest number between" << numA;
   cout << " and " << numB << " is " << smallest;
}
```

(a) Identify the return type of `DetermineInput` function.

(2 marks)

(b) Write its function prototype.

(4 marks)

(c) Based on the `DetermineInput` function code, write a C++ statement to enable the `DetermineInput` calls a new user-defined function named `GetSmallNumber`. The `GetSmallNumber` should receive two integer values; `numA` and `numb`. Also, the `GetSmallNumber` function should return the smallest value between them.

(5 marks)

(d) By using the function call statement in Q4(c), write C++ statements for `GetSmallNumber` function definition to find the smallest between two integer values.

(14 marks)

- END OF QUESTIONS -