Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2015/2016

COURSE NAME	:	COMPUTER PROGRAMMING
COURSE CODE	:	BEC10102
PROGRAMME CODE	:	BEJ / BEV
EXAMINATION DATE	:	JUNE / JULY 2016
DURATION	:	2 HOURS
INSTRUCTION	:	ANSWER **ALL** QUESTIONS.

THIS QUESTION PAPER CONSISTS OF **FIVE (5)** PAGES

Q1 (a) With the aid of diagram, explain the differences between the following arrays.

```
char s1[]={ 'a', 'b', 'c'};
char s2[] = "abc";
```

(8 marks)

(b) Construct a C++ program that will read up to ten letters into an array and write the letters back to the screen in the reverse order. Use a period as a sentinel value to mark the end of the input. For example, if the input is

```
Happy.
```

then the output should be

```
yppaH
```

(17 marks)

Q2 Answer (a) to (d) based on the following fragment code. Assume all required headers are defined correctly.

```
_____ DetermineInput()
{
   int smallest=0;
   intnumA=0, numb=0;
   cout<< "First integer number:";
   cin>>numA;
   cout<< "Second integer number:";
   cin>>numB;
   /*insert function callfor 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 Q2(c), write C++ statements for`GetSmallNumber`function definition to find the smallest between two integer values.

(14 marks)

Q3 (a) Based on the following pseudo code:

```
1. Begin
2. ReadA,B
3. IfAislessthanB
      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 flowchart

(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)

Q4 (a) StatewhetherthefollowingisaC++ reservedword,valid orinvalid 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 anequivalent 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 pseudocodeQ4(d)(i) to a complete C++ program.

(6 marks)

- END OF QUESTIONS -