UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER I
SESSION 2017/2018

COURSE NAME	:	COMPUTER PROGRAMMING
COURSE CODE	:	BFC 20802
PROGRAMME CODE	:	BFF
EXAMINATION DATE	:	DECEMBER 2017 / JANUARY 2018
DURATION	:	2 HOURS 30 MINUTES
INSTRUCTION	:	ANSWER **ALL** QUESTIONS

TERBUKA

THIS QUESTION PAPER CONSISTS OF **TEN (10)** PAGES

Q1   Please answer **T (True)** or **F (False)** for the following statements.

	Questions	TRUE	FALSE
a	Hand trace a program is a program using a computer.		
b	"if" statement allows statements to be conditionally executed or skipped over.		
c	Named constant or constant variable is a variable whose content can be changed during program execution.		
d	Loop can be use when a false condition to stop the loop and an update to occur at the end of each iteration.		
e	Input validation is the process of inspecting data that is given to the program as input and determining whether it is valid.		
f	Loop is a control structure that causes a statement or statements to only one repeat.		
g	Overloading Functions can be used to create functions that perform the same task and take same parameter types or different number of parameters.		
h	The exit () Function is terminates the execution of a program and can be called from any function.		
i	The size of an array is (number of elements) * (number of element).		
j	Array is variable that cannot store multiple values of the same type.		

(10 marks)

CONFIDENTIAL

Q2   State whether the following variable names are valid or invalid. If they are invalid, state the reason.

No	Variable	Answer
a	int_main_123	
b	compressive_1_2	
c	.vehichle	
d	percent_%	
e	else	
f	keyword	

(6 marks)

Q3   Provide the result of the given Boolean expression for the given variable value:

No	Expression	Answer
a	(3==3)	
b	(10>11)	
c	(4.5!=5.6)	
d	(100>=100)	

TERBUKA

(4 marks)

Q4   Solve the following arithmetic expression. The final answer must be in the form of int data type.

No	Expression	Answer
a	10+3*1/2	
b	5/(2+(3-1)*8	
c	5%2+6*3	
d	7/2%3*5	
e	(3-2)%5*7	

(5 marks)

Q5   Show the hierachy of relational and logical operators, from highest (FIRST) to lowest (FIFTH).

No	Operator	Precedence
a	==	
b	&&	
c	!	
d	||	
e	>=	

(5 marks)

Q6   Write a single C++ statement or line that accomplishes each of the followings:

(a)   Relational operator to return TRUE if the variable *Ranjit* is not equal to *Akmal*.

(1 mark)

(b)   Declare a constant COMPRESSIVE_STRENGTH inside a function with value 35.

(1 mark)

(c)   A WHILE loop that will display the *numbers* from 200 to 220.

TERBUKA

(1 mark)

(d)   Print a statement that prompt "$b^2 - 4ac$".

(1 mark)

(e)   Define the output of the following C++ program.

```
bool even = false;
cout << (even ? "true" : "false") << endl;
```

(1 mark)

Q7   Given the following C++ program:

```cpp
#include <iostream>
using namespace std;
int main()
{
int x = 8;
while (x < 16)
if ((x++) % 2 == 0)
cout << x << endl;
return 0;
}
```

(a)   Rewrite the above code segment by using *do..while* statement.

(2 marks)

(b)   What is the output of the above code segment?

(2 marks)

(c)   How many times the loop repeats?

TERBUKA

(1 mark)

Q8   Define the Boolean output for each statement. Assume i=1, j=2, k=3 and m=2.

(a)   cout << (i == 1);

(b)   cout << (j == 3);

(c)   cout << (i >= 1 && j < 4);

(d)   cout << (m <= 99 && k < m);

(e)   cout << (j >= i || k == m);

(f)   cout << (k + m < j || 3 - j >= k);

(g)   cout << (!m);

(h)   cout << (!(j - m));

(i)   cout << (!(k > m));

(j)   cout << (k > m);

(10 marks)

Q9   Determine the output of the following C++ program if:

```cpp
#include  <iostream>
#include <cmath>
using namespace std;

int main()
{

float a, b, c, test;
float x1, x2;

cout<<"This Program Will Solve the Quadratic Equation.\n\n";
cout<<"Enter value of a, b and c for equation ax^2 + bx + c\n\n";

cout<<"\nEnter value of a:";
cin>>a;
cin.ignore();
cout<<"\nEnter value of b:";
cin>>b;
cin.ignore();
cout<<"\nEnter value of c:";
cin>>c;
cin.ignore();

test = (b*b)-(4*a*c); /* Testing for a real roots */

if(test < 0) /* value of b^2-4ac is negative */
    {
            cout<< "\n\nThe equation could not be solved because the
            value is negative.\n\n";
    }

else if(test==0) /* The value is one real roots */
    {
        x1 = -b/(2*a); /* Solution for one value of x */
        cout<<"\n\nThe value of x is "<<x1<<"\n\n";
    }

else /* There are two value of x */
    {
        x1 = (-b + sqrt(test)) / (2*a); /*Solution for first value of
x */

        x2 = (-b - sqrt(test)) / (2*a); /*Solution for second value of
x */

        cout<<"\n\nThe value of x is " <<x1<< " and " << x2<< "\n\n";
    }

cin.get();
}
```

    CONFIDENTIAL

(a)   a = 1, b = -4 and c = 4

(b)   a = 2, b = -6 and c = -20

(c)   a = 2, b = 3 and c = 3

(d)   a = -5, b = 10 and c = -16

(e)   a = 7, b = -40 and c = 9

(10 marks)

Q10   Show the output of the following C++ program if the input value for variable `number` is 10.

```cpp
#include <iostream>
#include <cmath>
using namespace std;

int main()
{
    int j, number, result;
    cout<<"Enter number:";
    cin>>number;

    for (j=1; j<=number; j++)
    {
        result=pow(j,2)+ result;
        cout<<result<<endl;
    }

    return 0;
}
```
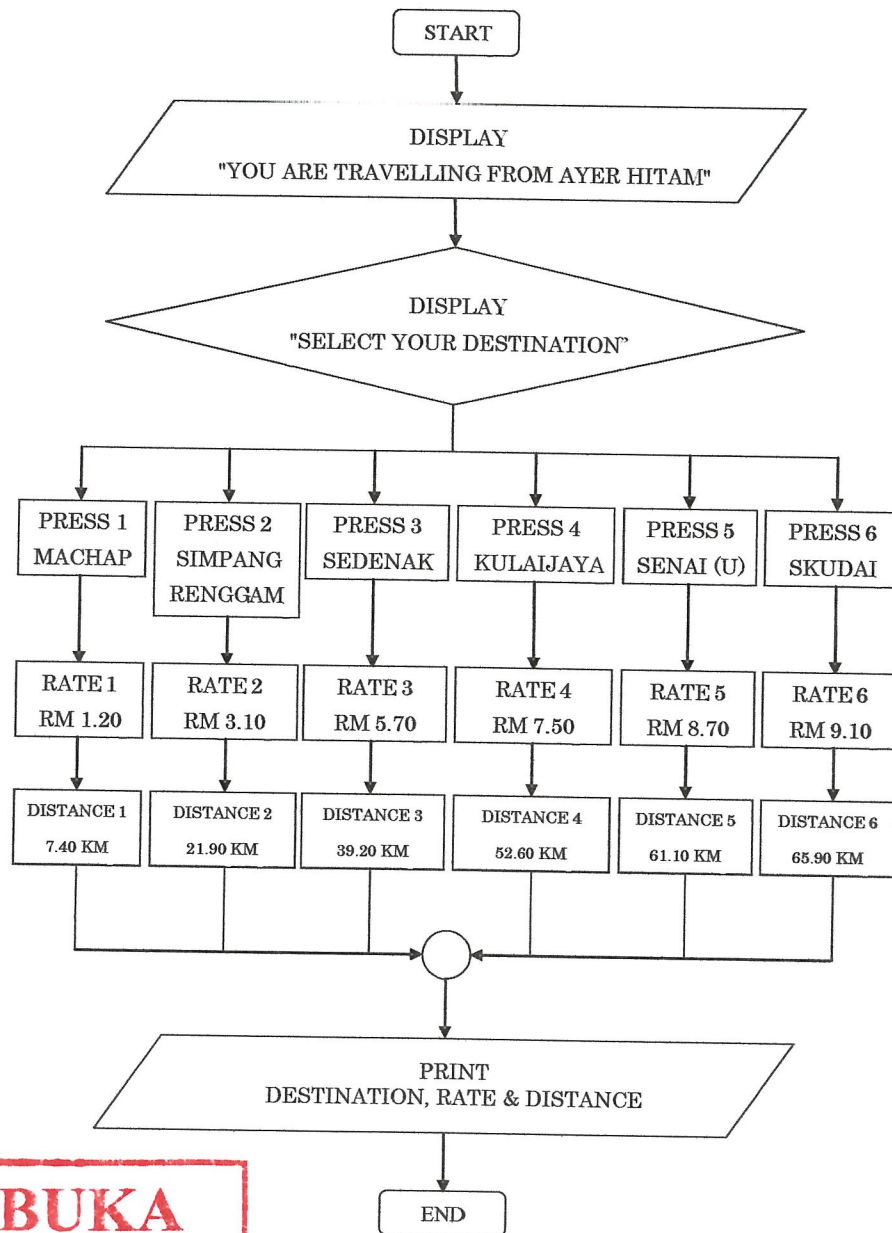
TERBUKA

(10 marks)

CONFIDENTIAL

Q11   **Figure Q11** shows the flowchart of the cost and distance needed to travel from Ayer Hitam to each Southern inbounds, including Machap, Simpang Renggam, Sedenak, Senai (U) and Skudai. Complete the C++ code and construct a pseudocode which explains the flow of the cost and distance needed to travel from Ayer Hitam to each southern inbounds (Machap, Simpang Renggam, Sedenak, Kulaijaya, Senai (U) and Skudai), based on the selection provided by the user.

FIGURE Q11

(a)   Write a pseudocode that representing the flowchart as given in **Figure Q11**.

(10 marks)

(b)   Complete the C++ code below as representing the flowchart in **Figure Q11**.

(20 marks)

```
1   //Program travel
2
3   #include _____
4   using    _____
5
6   int _____
7   {
8   int press;
9
10  cout <<"YOU ARE TRAVELLING FROM AYER HITAM"<< endl;
11  cout <<"SELECT YOUR DESTINATION"<< endl;
12  cout <<"PRESS 1. MACHAP"<< endl;
13  cout <<"PRESS 2. _____
14  cout <<"PRESS 3. _____
15  cout <<"PRESS 4. _____
16  cout <<"PRESS 5. _____
17  cout <<"PRESS 6. _____
18
19  switch _____
20  {
21  case 1
22  _____
23  _____
24  _____
25  _____
26
27  case 2
28  _____
29  _____
30  _____
31  _____
32
33  case 3
34  _____
35  _____
36  _____
37  _____
38
39  case 4
40  _____
41  _____
42  _____
43  _____
44
```

```
45   case 5
46   _____
47   _____
48   _____
49   _____
50
51   case 6
52   _____
53   _____
54   _____
55   _____
56
57   default :
58   cout <<"PRESS 1 TO 6"<< endl;
59   }
60   return 0;
61   }
```

– END OF QUESTIONS –

TERBUKA