



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2012/2013**

COURSE NAME : COMPUTER PROGRAMMING
COURSE CODE : BFC 20802
PROGRAMME : 2 BFC / 3 BFC
EXAMINATION DATE : DECEMBER 2012 / JANUARY 2013
DURATION : 2 HOURS 30 MINUTES
INSTRUCTION : ANSWER ALL QUESTION IN PART A
AND PART B
CHOOSE ONLY **TWO (2)** QUESTIONS IN
PART C

THIS QUESTION SET CONSIST OF **SEVENTEEN (17)** PAGES
ANSWER ALL QUESTIONS IN THIS BOOKLET

SECTION A

Please answer T (True) or F (False) in the correct column.

No.	Questions	Answer	
		TRUE	FALSE
1	Every <code>if</code> statement must have a corresponding <code>else</code> statement.		
2	Statement of <code>do...while</code> means the program do once times even if the expression is false.		
3	C++ contains four different loop structures: the <code>while</code> loop, the <code>do...while</code> loop, <code>for</code> loop and <code>looping</code> loop.		
4	<code>break</code> statement consists of terminating the loop immediately.		
5	A variable defined inside a function is referred to as a local variable.		
6	The global variables have to be declared inside the <code>main</code> Function.		
7	All function must return the result to the called function statement included <code>void</code> return type.		
8	Functions can return value of the variable and arithmetic operation.		
9	<code>float score[5.5]</code> is valid array statements.		
10	Array is a series of elements of the same type stored on adjacent memory locations.		

(10 marks)

SECTION BInstruction: Answer **ALL** questions.**Q1** (a) Declare a variable `x` that can contain value of floating point number.(1 mark)**Answer:**(b) Declare a group or array of variable `Arr` that hold 12 values, each one being a character. (1 mark)**Answer:**(c) Declare a value of constant and naming it to `PI` and put the value 3.142 (1 mark)**Answer:**(d) Given two values, $x = 10$ and $y = 2$. Declare both variables. Then, use `pow()` function to calculate x^y . (2 marks)**Answer:****Q2** Write a correct C++ expression using pre-function from math library (`cmath` or `math.h`) that are equivalent to the following equation.

(a) $\sqrt[a]{x + y^2}$ = _____

(b) $\tan^{-1}(q)$ = _____

(c) $-1|x^2 + y^2|$ = _____

(d) $a \times E^{5b}$ = _____

(e) $\frac{\pi}{2}$ = _____

(5 marks)

Q3 Program 1 given.

(a) Define the output for the Program 1. (2 marks)

Program Code	ANSWER
<pre>//Program 1 #include <iostream.h> int main() { int count = 0; cout << count << endl; count++; cout << count << endl; ++count; count += 3; cout << count << endl; cout << count++ << endl; cout << ++count << endl; cout << count--; cout << endl; count = count * 4; cout << count << endl; return 0;} </pre>	

(b) Draw flow chart for the program 1. (3 marks)

Answer:

Q4 Trace all errors in Program 2. Then, briefly explain the function of header file <iomanip>

(5 marks)

```
1 //Program 2
2 #include <iostem>
3 #include <iomanip>
4 using namespace std;

5 int main( )
6 {
7     double num1, num2 total;
8     num1 = 3;
9     num2 = 1.32;
10    total = num1 + num2
11    cout >> "Total : ";
12    cout << setprecision(2) << total;

13    system("PAUSE");
14    return 0;
15 }
```

Answer:

Q5 Answer the following questions by referring to Program 3.

```
// Program 3
double age=-1, ticket;
while (age<0)
{   cout<<"Enter the age: ";
    cin>>age;
}
if (age>=0 && age<=3)
    ticket = 0;
else if (age>3 && age<=12)
    ticket = 5;
else
{   if (age<55)
        ticket = 14;
    else
        ticket = 7;
}
cout<<"\nThe ticket price for age "
    <<age<< " is RM" <<ticket<<endl;
```

(a) Find the expected output for the following age. (4 marks)

INPUT (age)	OUTPUT (ticket)
-2	
3.5	
55	
14	

(b) If data type for variable *age* is change into *int*, what is the expected output for age 12.9?

(1 mark)

Answer:

Q6 Convert the nested loop *for* in Program 4 to *while* loop for inner and outer loops.

```
//Program 4
int jumlah=100,i,j;
for( i=2; i<12; i+=2)
{
    int kira = 0;
    for( j=1; j<=5; j++)
    {
        kira+=2;
        jumlah-=2;
    }
    cout<< kira <<endl;
}
cout<< jumlah <<endl;
```

(5 marks)

Answer:

Q7 Given Program 5 which consists of fixed value in a function.

```
1 //Program 5
2 #include <iostream.h>
3 int multipProcess (int a, int b=2);
4 int main()
5 {
6 cout << "The default-value is: "<< multipProcess(50)<< endl;
7 cout << "50 multiply by 2 is: "<< multipProcess(50,2)<<endl;
8 return 0;
9 }
10 int multipProcess (int a, int b)
11 {
12 int r;
13 r=a*b;
14 return (r);
15 }
```

(a) Identify the output of the program 3. (2 marks)

Answer:

(b) State the following items in the program:

(i) Name of function. (1 mark)

Answer:

(ii) Define all parameter (1 mark)

Answer:

(iii) Define Line 3 (1 mark)

Answer:

Q8 Understand program 6 and fill in the blanks.

```
1 //Program 6
2 #include <iostream>
3 #include <_____> // (1)
4 #define TAX 0.06
5
6 using namespace std;
7
8 double TaxRate(_____); // (2)
9
10 _____ // (3)
11 {
12     double price, taxAddition, total;
13     taxAddition = 0;
14     cout << "Please insert price for the item : RM ";
15     cin >> price;
16
17     if (price > 10.0)
18     {
19         taxAddition = TaxRate(price);
20     }
21     total = price + taxAddition;
22     cout << "Price for the item is : RM ";
23     cout << setprecision(4) << total;
24     system("PAUSE");
25     return 0;
26 }
27
28 double _____(double _____) // (4 & 5)
29 {
30     return price * TAX;
31 }
```

(5 marks)

Q9 Given the following is Program 7.

```
1 // Program 7
2 #include "iostream.h"
3 #include "iomanip.h"

4 int main()
5 {
6     for (int x=0; x<35; x+=7)
7     {
8         cout<<'\\t'<<x;
9     }
```

(a) Determine the purpose of the program. (2 marks)

Answer:

(b) Identify the output of the program. (3 marks)

Answer:

Q10 Given the following is Program 8.

```
1 //Program 8
2 #include <iostream.h>
3
4 int main()
5 {
6 int h, i[6], j[6] = {3, 5, 5, 6, 3, 7};
7
8 for (h=0; h<=5; h=h+1)
9 {
10     i[h] = j[h];
11     cout<<i[h];
12 }
13 return 0;
14 }
```

- (a) Define the names of the arrays. (1 mark)

Answer:

- (b) Define the name of initialised array during its declaration. (1 mark)

Answer:

- (c) Determine the roll of h. (1 mark)

Answer:

- (d) Draw the memory location for the following declaration. (2 marks)

```
int arr [13] = {3, 5, 5, 6, 3, 7};
```

Answer:

SECTION C

Instruction: Answer **TWO (2)** questions only.

Q1 You are required to develop a program to print table 1 to table 10 by using nested loop. To ease you develop the program, you have to draw a **flow chart** before writing the **C++ program**. Output example such as figure below.

```

Carta Sifir 1 Hingga 10
-----
 1   2   3   4   5   6   7   8   9  10
 2   4   6   8  10  12  14  16  18  20
 3   6   9  12  15  18  21  24  27  30
 4   8  12  16  20  24  28  32  36  40
 5  10  15  20  25  30  35  40  45  50
 6  12  18  24  30  36  42  48  54  60
 7  14  21  28  35  42  49  56  63  70
 8  16  24  32  40  48  56  64  72  80
 9  18  27  36  45  54  63  72  81  90
10  20  30  40  50  60  70  80  90 100

      Program selesai.
Press any key to continue . . .
    
```

Figure 1

(20 marks)

Q2 Write C++ code to display output as Figure 2. Use function call to execute function `displayFunc_A` and `displayFunc_B`. Please **draw the flowchart** before **write the C++ code**.

displayFunc_A	displayFunc_B
* * * * * * * * * * * * * * *	* * * * * * * * * * * * * * *

Figure 2

(20 marks)

Q3 Determine the largest number from two integer numbers which is a parameter list of a function. Draw a **flow chart** and develop a **C++ program** where you need to invent:

- a) 2 prototype function: **comparison(int a, int b)** and **display(int c)**
- b) **main()** function that needed to ask an input of two numbers from user.
- c) after that, call the **comparison(int a, int b)** function which accept two integer numbers and make a comparison to find the largest number. Finally, print the largest number using the **display(int c)** function.

(20 marks)

Q4 You are required to develop a program to calculate the total marks and average for class X. Create a **flowchart** and write **C++ program** based on functions below.

Function prototype	Function Header
void Display(double);	Display the average marks
double Get_Marks(void);	Ask user to enter marks as shows in Table 1
double Average(double, double, double);	Calculate the average marks for 3 students
int main()	Main function to run the program

Students	Marks
Student 1	55.5
Student 2	80.0
Student 3	75.5

Student marks

```

Enter the mark:55.5
Enter the mark:80.0
Enter the mark:75.5
The average mark is:70.33
Press any key to continue . . .
    
```

Figure 3 Output example

(20 marks)

- END OF QUESTIONS -

Answer:

Answer:

Answer:

Answer: