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**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

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

**SUBJECT** : COMPUTER PROGRAMMING  
**CODE** : BFC 20802 / BFC 2042  
**COURSE** : 2 BFC / 3 BFC  
**DATE** : JUNE 2013  
**DURATION** : 2 ½ HOURS  
**INSTRUCTION** : ANSWER ALL QUESTION IN PART A  
AND PART B  
CHOOSE ONLY TWO (2) QUESTIONS IN  
PART C  
ANSWER ALL QUESTIONS IN THIS  
BOOKLET

THIS QUESTION SET CONSIST OF TEN (10) PAGES

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**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	The job of the CPU is to fetch instruction, carry out the operations commanded by the instructions, and produce some outcome or resultant information.		
3	A double is stored in one byte.		
4	Mistakes that cause a running program to produce incorrect results are called logic error.		
5	A variable defined inside a function is referred to as a global variable.		
6	The local 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	High-level language such of C++ language are close to the level of hardware in terms of readability.		
10	Array is a series of elements of the same type stored on adjacent memory locations.		

(10 marks)

**SECTION B**

Instruction: Answer ALL questions.

Q1 (a) Write a possible statement of C++ for each instruction as following.

i) Declare variable for product price and discount. (1 mark)

Answer:

ii) Declare a group or array of variable Arr that hold 12 values, each one being a character.

Answer: (1 mark)

iii) Declare a value of constant and naming it to PI and put the value 3.142.

Answer: (1 mark)

iv) Given two values,  $x = 10$  and  $y = 2$ . Declare both variables. Then, use *pow()* function to calculate  $y^x$ . (2 marks)

Answer:

(b) Write Write a correct C++ expression using pre-function from math library (cmath or math.h) that are equivalent to the following equation. (5 marks)

i)  $\sqrt[a]{x + y^2}$  = \_\_\_\_\_

ii)  $ab + (ac \text{ modulus } bc) + abc$  = \_\_\_\_\_

iii)  $-1|x^2 + y^2|$  = \_\_\_\_\_

iv)  $a \times E^{5b}$  = \_\_\_\_\_

v)  $\frac{\pi}{2}$  = \_\_\_\_\_

Q2 Please refer to Program 1.

(a) Rewrite the following statements to *for* statement.

(5 marks)

Program Code	ANSWER
<pre>//Program 1 #include &lt;iostream.h&gt; int main() {     y = 65;     while(y &lt;= 85)     {         cout&lt;&lt; y;         y += 5;}     return 0; }</pre>	

(b) Draw flow chart for the program 1.

(5 marks)

**Answer:**

**Q3** Answer the following questions by referring to Program 2.

```
// Program 2
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) Change the code using do.... while statement. (5 marks)
- (b) Find the expected output for the following age. (4 marks)

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

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

(1 mark)

**Answer:**

**Q4** Convert Program 3 to *while* loop for inner and outer loops, and draw the flow chart.

(10 marks)

```
//Program 3
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;
```

**Answer:**

**Q5** Understand program 4 and fill in the blanks.

```

1 //Program 4
2 #include <iostream>
3 #include <_____> // (1)
4 #define TAX 0.06

5 using namespace std;

6 double TaxRate(_____); // (2)

7 _____ // (3)
8 {
9 double price, taxAddition, total;
10 taxAddition = 0;
11 cout << "Please insert price for the item : RM ";
12 cin >> price;

13 if (price > 10.0)
14 {
15     taxAddition = TaxRate(price);
16 }
17 total = price + taxAddition;
18 cout << "Price for the item is : RM ";
19 cout << setprecision(4) << total;
20 system("PAUSE");
21 return 0;
22 }

23 double _____ (double _____) // (4 & 5)
24 {
25 return price * TAX;
26 }

```

(5 marks)

**Q6** Given the following is Program 5.

```
1 // Program 5
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:**



**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.

```

Table 1 to 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 output:
Press any key to continue . . .
    
```

**Figure 1**

(20 marks)

**Q2** Bintang Book Shop sells school text books and wants to give discounts to their customers. Total discount given is based on the purchase price as given below:

Price	Percentage of discount given
Up to \$50.99	5%
\$51.00 - \$100.99	10%
\$101.00 - \$250.99	20%
More than \$251.00	25%

**Figure 2**

- (a) Draw a complete flowchart to solve the problem above.
- (b) Write a complete C++ program based on your flowchart in (a).

Tips: U can choose any suitable program as you know.

(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:

- 2 prototype function: **comparison(int a, int b)** and **display(int c)**
- main()** function that needed to ask an input of two numbers from user.
- 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 QUESTION -