UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2015/2016

COURSE NAME   : COMPUTER PROGRAMMING

COURSE CODE   : BBT 30802

PROGRAMME CODE   : BBV

EXAMINATION DATE   : JUNE / JULY 2016

DURATION   : 2 HOURS AND 30 MINUTES

INSTRUCTION   : ANSWER **ALL** QUESTIONS

THIS QUESTION PAPER CONSISTS OF **TWELVE (12)** PAGES

SECTION A

Instruction: Please answer **T (True)** or **F (False)**.

No.	Questions	Answer	
		True	**False**
Q1	1 2 3 is a valid identifier in C++.		
Q2	All variables must be declared before they are used.		
Q3	C++ considers the variables **number** and **NuMbEr** to be identical.		
Q4	The object used to print information on the screen is CIN.		
Q5	A C++ statement that makes a decision is IF.		

Q6	int result = 1;
	for(int i = 1; i <= 5; i++)
	{
	if(i%2 == 1)
	result *= i;
	}
	Output for this program is: 1 3 15		

Q7	float numbers[10.2] is a valid array statements.		
Q8	Statements and declarations must end with semicolons.		
Q9	This code will produce **44** as an output. int value[20]={0,11,22,33,44,55,66,77,88,99}; cout<<value[5];		
Q10	C++ contains three different loop structures: the **while** loop, the **do...while** loop and *if* loop.		

(10 marks)

SECTION B

Q11 Write the expression of C++ language which is equivalent with the following mathematic expressions:

No	Mathematical Expression	Answer
(a)	$\dfrac{a^3 + ab}{(c^2 - 5c)(ab + 1)}$	
(b)	ab + (ac/bc) + abc	
(c)	(a + b) (c + d) (e + f)	
(d)	$h = \dfrac{83a + 24b^2}{\sqrt{c} - 4}$	
(e)	ac + 45 - 20 x 7	

(5marks)

Q12 Write a single C++ statement or line that accomplishes each of the following:
   (a) **PRINT** the message "Enter two numbers".
   (b) **ASSIGN** the multiplication of variables b and c to variable a.
   (c) **STATE** that a program performs a payroll calculation (i.e., use text that helps to document a program.
   (d) **INPUT** three integer values from the keyboard into integer variables a, b and c.
   (e) **ADD** y with 2, double it and stored into x.

(5 marks)

Q13   Write the output generated by each code block. "No output" is a valid response.

(a)
```cpp
char option = 'd';
if (option == 'a')
{
        cout  << "add record";
}
if (option == 'd')
{
        cout  << "delete record";
}
```

(b)
```cpp
int grade = 45;
if (grade >= 70)
{
        cout << "passing" << endl;
}
if (grade < 70)
{
        cout << "dubious" << endl;
}
if (grade < 60)
{
        cout << "failing" << endl;
}
```

(c)
```cpp
int g = 45;
cout << "g: " << g << endl;
if(g = 70)
        cout << "at cutoff" << endl;
        cout << "g: " << g << endl;
if(g = 1)
        cout << "you get one" << endl;
        cout << "g: " << g << endl;
```

(d)
```cpp
char input = 'q';
switch(input)
{
        case 'A':
        cout << "one";
```

4

```
                break;
                case 'D':
                cout << "two";
                break;
                case 'Q':
                cout << "three";
                break;
            default:
            cout << "four";
            }
```

(2 marks)

Q14   Evaluate the following expressions. Use a decimal point to distinguish integer and floating point results. "Error" is a valid response.

Assume these declarations precede these expressions:
double x = -7.4;
double y = 10.0;
double z = 2.5;

(a) 5 / 2 = 2
(b) pow(y, 3)
(c) sqrt(x
(d) fabs(x+2)
(e) fabs(x)+2
(f) pow(ceil(x), floor(z))

(3 marks)

Q15   Identify and correct the error(s) in each of the following:

(a) if (age >= 65);
           cout << "Age is greater than or equal to 65" << endl;
       else
           cout << "Age is less than 65 << endl";

b) if (age >= 65)
           cout << "Age is greater than or equal to 65" << endl;
       else;
           cout << "Age is less than 65 << endl";

c) int x = 1, total;
   while (x <= 10)
        {
          total += x;
          ++x;
        }

d) while (x <= 100)
     total += x;
     ++x;

e) while (y > 0)
        {
        cout << y << endl;
        ++y;
        }

(10marks)

Q16 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?

(1 mark)

6

Q17   Assume i = 1, j = 2, k = 3 and m = 2. What does each statement print?

(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);

(5marks)

Q18   Given the following C++ program:

```
#include <iostream>
using namespace std;
int main()
{
for (int iLoop=1; iLoop<=100; iLoop*=3)
cout << iLoop << endl;
system("PAUSE");
return 0;
}
```

Program 1

What is the output of the following Program 1?

(5 marks)

Q19   Convert this *do..while* loop to *for* and *while* loop that prints out the odd numbers 1 through 99, separated by a blank space.

```
int x = 1;
do {
cout << x << " ";
x = x+2;
}
while (x <= 99);
```

Program 2

(5 marks)

Q20   Given the following C++ program:

```cpp
#include <iostream>
using namespace std;
int main()
{
int number, total=0;
cout << "Enter a number from 1 to 9: ";
cin >> number;
switch(number)
{
number++;
case 1: ++number;
cout<<total;
break;
case 2: total=2;
cout<<total;
++number;
case 4: total+=4;
cout<<total;
break;
case 8: total-=3;
cout<<total;
number--;
break;
default: total*=2;
cout<<total;
}
cout<<endl;
system("PAUSE");
return 0;
}
```

Program 3

(a) What is the output if *number=1*?
(b) What is the output if *number=2*?
(c) What is the output if *number=4*?
(d) What is the output if *number=8*?
(e) What is the output if *number=3.5*?

(5 marks)

SECTION C

Q21 Draw **flowchart** and write a complete **C++ program** to identify the grade for subject BBT 30802 (Computer Programming) based on the assessments as listed in **Table 1** while **Table 2** is the input from the user. The final mark for this subject will be calculated based on the **SIX (6)** assessments input marks. Based on this final mark, the program will display a grade. The grade scales are as tabulated in **Table 3** (Example of Output: refer to Figure **Q1**).

Hint:
Your program should implement the loops and decision statements to produce the required outputs.

ASSESSMENT
Lab (10%)
Quiz (5%)
Assignment (10%)
Test (10%)
Project (15%)
Final (40%)

Table 1

INPUT MARKS
7
3
7
10
15
27

Table 2

GRADE SCALES	
85 - 100	A+
80 - 84	A
75 - 79	A-
70 - 74	B+
65 - 69	B
60 - 64	B-
55 - 59	C+
50 - 54	C
45 - 49	C-
40 - 45	D
0 - 39	E

Table 3

(20 marks)

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Q22 Create a **C++ program** that will reads in THREE (3) integers from keyboard, calculate the average and display the average. Draw a **flowchart** where you need to invent:

    a. 3 prototype function: *int getInteger(void)*, *float calcAverage(int a, int b, int c)* and *void dispAverage(float avg)*

    b. main() function that needed to ask an input of three numbers from user.

    c. After that, call the *getInteger()* function which accept 3 integer numbers and calculate the average using *calcAverage(val1, val2, val3)* function. Then, print the average value by using the *dispAverage(float avg)* function.

(20 marks)

-END OF QUESTION –

FINAL EXAMINATION

SEMESTER / SESSION: SEM I / 2014/2015   PROGRAMME: 3BBT
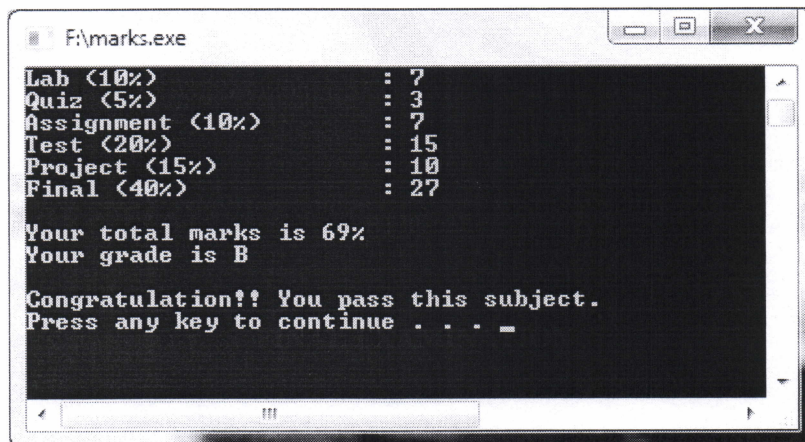COURSE: COMPUTER PROGRAMMING   COURSE CODE: BBT30802

```
F:\marks.exe

Lab (10%)                    : 7
Quiz (5%)                    : 3
Assignment (10%)             : 7
Test (20%)                   : 15
Project (15%)                : 10
Final (40%)                  : 27

Your total marks is 69%
Your grade is B

Congratulation!! You pass this subject.
Press any key to continue . . . _
```

FIGURE Q1