UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESI 2010/2011

COURSE NAME	:	COMPUTER PROGRAMMING
COURSE CODE	:	BFC2042
PROGRAMME	:	2 BFF
EXAMINATION DATE	:	APRIL / MAY 2011
DURATION	:	2 HOURS AND 30 MINUTES
INSTRUCTION	:	ANSWER ALL QUESTIONS IN PART A AND B.
		ANSWER ONLY TWO (2) QUESTIONS IN PART C.

THIS PAPER CONSISTS OF THIRTEEN (13) PAGES

SECTION A *[BAHAGIAN A]* (10 Marks)

Question 1 (True/False) *[Soalan 1 (Betul/Salah)]* [5 Marks]

Write 'T' if the statement is true and 'F' if the statement is false.
[*Tulis 'T' jika pernyataan adalah betul dan 'F' jika pernyatan adalah salah.*]

No	Question *[soalan]*	T/F
a	Array is a variable that can store multiple values of the same type [*Array adalah pembolehubah yang boleh menyimpan beberapa nilai dari jenis yang sama*]	
b	Loop is a control structure that causes a statement or statements to repeat [Loop adalah struktur kawalan yang menyebabkan kenyataan atau pernyataan berulang]	
c	Modular programming breaks a program up into smaller, manageable functions or modules [Modular Programming memecahkan satu program menjadi lebih kecil, fungsi-fungsi terurus atau modul]	
d	pow(3,3) is 21 [*pow(3,3) ialah 21*]	
e	Function call consists of statements that make up a function [Function call terdiri daripada penyataan yang membentuk suatu fungsi]	

Question 2 (Objectives) *[Soalan 2 (Objektif)]* [5 Marks]

Choose the one alternative that best completes the statement or answer the question.
[Pilih salah satu alternatif yang paling tepat untuk pernyataan berikut atau menjawab pernyataan itu]

1) How many times (loops) the following code prints "Welcome to C++"?
[Berapa kalikah kod berikut mencetak " Welcome to C++"?]

```
int count = 0;
while (count < 10)
{
  cout << "Welcome to C++"; }
```

a)   8
b)   10
c)   9
d)   Infinite Loop
e)   0

2) What is the output of the following code?
[Apalah output bagi kod berikut?]

```
void f(int y)
{
  cout<<y;    }
int main()
{
  int x=10;
  f(x);
  return 0;    }
```

a) nothing
b) 1
c) 10
d) 11
e) 0

3) Which of the following is required in #include for mathematical functions library in C++?
[Di antara yang berikut yang manakah diperlukan dalam #include untuk fungsi Math dalam c++?]

a) stdio.h
b) cmath.h
c) iostream.h
d) rand.h

4) Does the return statement in the following function cause syntax errors?
[Adakah pernyataan kembali dalam fungsi berikut menyebabkan ralat sintaks?]

```
void f()
{
  int max = 0;
  if (max != 0)
    cout << max;
  else
    return;    }
```

a) Yes
b) No

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5) What will be printed for the following array?
   [Apakah yang akan dicetak untuk array berikut?]

   ```
   int num[3] = {1,2,3};
   cout << num << endl;
   ```

   a) 123
   b) 1
      2
      3
   c) 321
   d) 3
      2
      1

SECTION B (SHORT QUESTION) *[BAHAGIAN B (Soalan Pendek)]*   **(20 MARKS)**

Answer all questions in this section. *[Jawab semua soalan dalam seksyen ini.]*

1. Assume a, b and c are integer variables with a = 4 and b = 10. Determine the value of c for the
    following statements: [2 Marks]
    *[Andaikan a,b dan c adalah pemboleh ubah integer dengan a = 4 dan b = 10. Tentukan nilai
    bagi c untuk pernyataan berikut:]*

Statements	Answer
a) c =--a * b--;	
b) c = a * --b;	

2. What is result for each operation below?   [2 Marks]
    [Apakah keputusan untuk setiap operasi berikut?]

    int i = 8, j=5;

No	Statements/Expression	Answer
i.	(i > 0) && (j < 0)	
ii.	(i > 0) || (j > 5)	
iii.	(i <= 4) && (i > 0) || (j > 5)	
iv.	(3 * i – 2) / (2 * 5 – 8)	

3. Rewrite the following statements to *for* statement.   [2 Marks]
    [Tulis semula pernyataan berikut kepada pernyataan for].

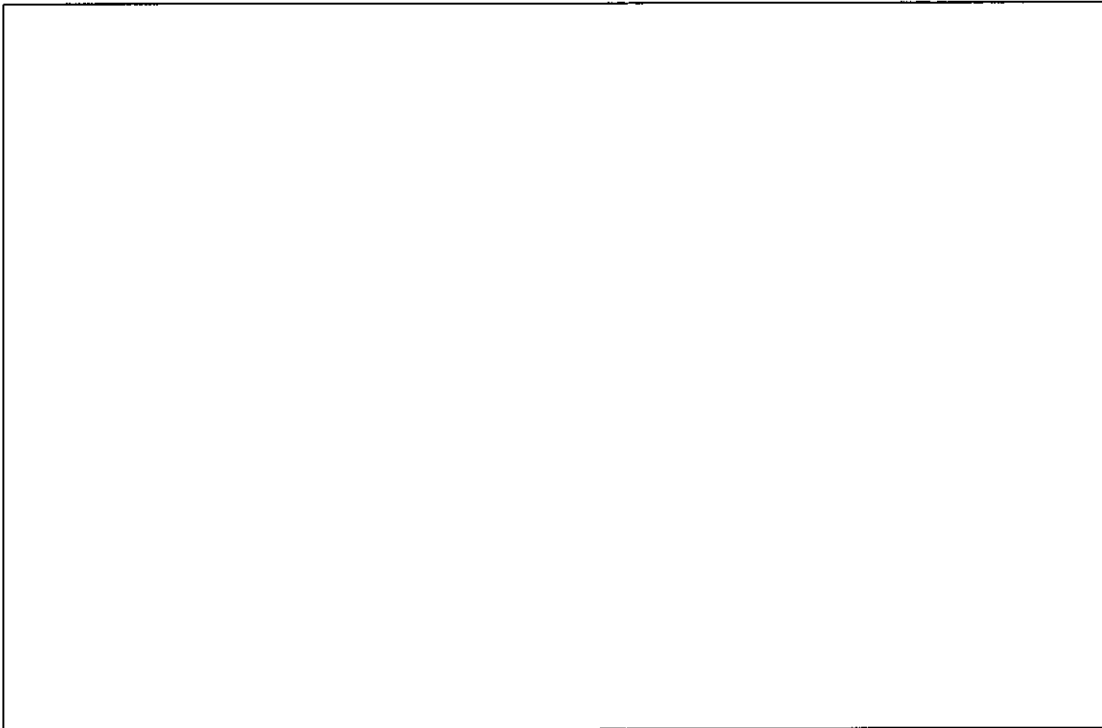|	Answer

y = 65;
while(y <= 85)
{ cout<< y;
  y += 5;
}	

4. Determine the data types for the information given below: [2 Marks]
    [Tentukan jenis data bagi maklumat berikut]

Data	Answer
a) Your age	
b) your name	
c) your salary	
d) number of students in your class	

5. Use a while loop to display the integer values on the screen as below. [2 Marks]
   [Gunakan gegelung while untuk memaparkan nilai integer pada skrin seperti di bawah.]

3 6 9 12 15 18 21 24

Answer:

6. What are instructions need to be filled in the empty spaces below. [2 Marks]
   [Apakah arahan-arahan yang perlu diisi pada ruangan kosong di bawah.]

```
#include <_____>
int oddeven (int);

void main()
{ int x, answer;
  cout<<"insert value of x : ";
  _____ x;
answer=oddeven(x);

if ( ( _____ == 1)
  cout<<"x is even\n";
else
  cout<<"x is odd\n";  }

_____ oddeven(int g)
{
  if (g %2 == 0)
    return 1;
  else
   return -1;    }
```

7. What is the output for the code segment below: [2 marks]
   [Apakah output untuk keratan aturcara di bawah:]

C++ Program	Output

`#include <iostream>`
`using namespace std;`
 	
`int main ()`
`{`
`  int n;`
`  n=1;`
 	
`  while (n<=10) {`
`    cout << n << ", ";`
`    n+=1;`
`  }`
 	
`  cout << "Thank You!\n";`
`  return 0;`
`}`	

8. Observe the following program segment: [2 Marks]
   [*Perhatikan segmen atur cara berikut:*]

```
float x, y;
cout<<"enter x";
cin>>x;
if(x > 3.0 && x<12.0)
        y = x / 100 * 5;
else
        y = 2.0 * x / 2;
cout<<"y="<<y;
```

What the output, if the input is:
[*Apakah ouputnya, jika input adalah:*]

a. 5.0
b. 3.0

9. What is the output for the following program: [2 Marks]
   [*Apakah output untuk aturcara di bawah:]*

	Output
```#include <iostream>``` ```using namespace std;``` ```int billy [] = {16, 2, 77, 40, 12071};``` ```int n, result=0;``` ```int main ()``` ```{``` ``` for (n=0 ; n<5 ; n++)``` ``` {``` ``` result += billy[n];``` ``` }``` ``` cout << result;``` ``` return 0;``` ```}```	

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10. a) Declare a group or array of 12 values, each one being a char. [1 Mark]
[isytiharkan kumpulan atau array untuk 12 nilai, masing-masing berjenis char.]

Answer:

b) Declare an array of 100 floating-point values [1 Mark]
[isytiharkan array dari 100 nilai floating-point]

Answer :

SECTION C (STRUCTURE QUESTIONS)
[BAHAGIAN C (SOALAN STRUKTUR)]   **(20 MARKS)**

Answer TWO questions only. *[Jawab dua soalan sahaja]*

Question 1 *[Soalan 1]*

a) Answer the following question based on C++ programming below. This program is free of
   errors.   [5 Marks]
   *[Jawab soalan berikut berdasarkan pengaturcaraan C++ di bawah. Program ini bebas dari
   kesalahan]*

```
1       #include<iostream.h>
2       int add (int x, y);
3       void main()
4       {
5          int num1, num2, sum=0;
6        cout<<"insert first integer :";
7       cin>>num1;
8       cout<<"insert second integer :";
9       cin>>num2;
10      add(num1,num2);
11         }
12      void add(int x, int y)
13      {
14      int sum;
15      sum=x+y;
16      cout<<"Value : "<<sum;
17         }
```

(i)   What is the meaning of the statement in the second line?
(ii) Which line that calls for function add?
(iii) Why the main function does not have return statement?
(iv) Which line shows function declaration?
(v) Which line consists of function definition?

b) What is the output of the following program? Why you get that kind of output? Explain the process of getting the output using a table of value. [5 Marks]

[Apakah output bagi program berikut? Mengapa anda mendapat output tersebut? Terangkan proses mendapatkan output itu menggunakan jadual nilai.]

```cpp
#include<iostream>
int val;
using namespace std;
main()
{ val = 10;
  funct1();
  funct2();
  funct3();
  cout<<"val = "<<val<<endl;
}
funct1()
 { val = 20; }
funct2()
 { val = 30; }
funct3()
 { val = 40; }
```

Format Answer
Output:

Line 1 : val=
Line 2 : val=
Line 3 : val=
Line 4 : val=
Line 5 : val=

Question 2 *[Soalan 2]*

Write C++ program that be able to calculate Body Mass Index (BMI) for 10 people.
You are required to use looping techniques. [10 Marks]
[Tulis program C++ yang akan mengira Indeks BMI untuk 10 orang.
Anda dikehendaki menggunakan teknik ulangan.]

Case : BMI

Body Mass Index (BMI) is a simple index of weight-for-height that is commonly used to classify underweight, overweight and obesity in adults. It is defined as the weight in kilograms divided by the square of the height in metres (kg/m^2). For example, an adult who weighs 70kg and whose height is 1.75m will have a BMI of 22.9.

Formula : $\dfrac{weight}{height^2}$ =

BMI classificatin

BMI	Classification
>=18.5	Underweight
18.50-24.99	Normal
25-29.99	Overweight
>=30	Obese

Question 3 *[Soalan 3]* [10 Marks]

You want to drive from Seremban to Johor Bahru using a rental car. To make you certain for the trip, you want to calculate how far you can go with a full tank of fuel. Write a program to read the distance of the car can go for one liter (in km per liter) and the size of tank (in liters) for that particular rental car. Finally, print out the distance that can be travelled using the full tank.
[Anda bercadang memandu dari Seremban ke Johor Bahru menggunakan kereta sewa. Untuk kepastian bagi perjalanan ini, anda mahu mengira sejauh mana kereta ini mampu pergi dengan tangki isian penuh bahan api. Tulis aturcara yang membaca jarak perjalanan seliter (dalam km per liter) dan saiz tangki kereta berkenaan (dalam liter). Akhir sekali, paparkan jarak perjalanan kereta tersebut jika ia bergerak menggunakan tangki dengan isian penuh.]

Example:

INPUT:
Enter the distance per liter (km per liter): 15
Enter the size of tank (liter): 30

OUTPUT:
The distance could be travelled is 450 km.

Question 5 *[Soalan 5]*   [10 Marks]

You are required to develop a C++ program to display output as below:
[Anda dikehendaki membangunkan program C++ untuk memaparkan output seperti di bawah:]

Salesperson Name :	**XXX**
Basic pay :	**RMXXX**
Allowance:	**RMXXX**
Gross Pay :	**RMXXX**
EPF:	**RMXXX**
Net Pay :	**RMXXX**

The Basic pay for the salesperson is RM1000.00. Allowance is 5% from a basic pay. Gross pay is by adding basic pay and allowance. 10% from basic pay is deducted for EPF payment. Net pay is when gross pay is deducted with EPF.
[Gaji asas untuk jurujual ialah RM1000.00. Elaun 5% dari gaji asas. Pendapatan kasar adalah gaji asas ditambah dengan elaun. 10% dari gaji asas ditolak untuk EPF. Pendapatan bersih adalah hasil tolak pendapatan kasar dengan EPF]