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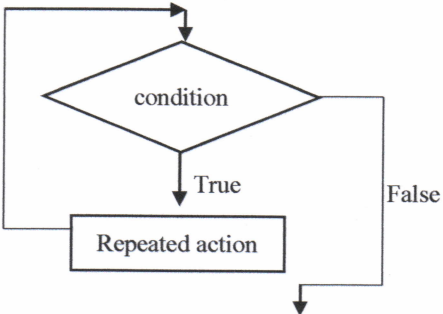## FINAL EXAMINATION
SEMESTER II
SESSION 2015/2016

COURSE NAME	:	COMPUTER PROGRAMMING
COURSE CODE	:	BFC 20802
PROGRAMME CODE	:	BFF
EXAMINATION DATE	:	JUNE / JULY 2016
DURATION	:	2 HOURS 30 MINUTES
INSTRUCTION	:	1. ANSWER **ALL** QUESTIONS IN SECTION A AND B.
		2. CHOOSE ONLY **ONE (1)** QUESTION IN SECTION C

THIS QUESTION PAPER CONSISTS OF **EIGHT (8)** PAGES

SECTION A

Q1   Please answer **T (True)** or **F (False)**.

(10 marks)

		Questions	TRUE	FALSE
a		ROM stands for Read-only memory.		
b		RAM & ROM enable a computer to send and receive data, instruction and information.		
c		Source code of the program can be compiled even syntax error is found, which is the advantage of using C++ language as compared to C language.		
d		Manipulator "endL" is used to advance the cursor to the beginning of the next line.		
e		Basic types of control structure are sequential, selection and repetition.		

f		The following code will not give an error.
		
		Int main ()
		{
		    const double G = 9.81;
		    double weight, mass
		    cout << "This program calculates the weight of an object.\n";
		    cin >> mass;
		    weight = mass * G
		    cout << "The weight of this object is" << weight << endl;
		    return 0;
		}		

g		The flowchart for selection structure is as shown 		
h		Any of the expressions followed by a semicolon are variables.		
i		Binary numbers are 10101000023010.		
j		Flags is a variable that signals a condition.		

SECTION B

Instruction: Answer **ALL** questions.

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

                                                                                (6 marks)

No	Variable	Answer
a	¥total	
b	5hands	
c	total.gst	
d	peak_hour	
e	using	
f	char	

Q3   Given x = 55, what are the values of each of the following expressions.

                                                                                (4 marks)

No	Expression	Answer
a	x%5	
b	(x/5)%10	
c	x/55	
d	x/(55%10)+x	

Q4   Convert the following *if* statement to flowchart.

(5 marks)

```
if(x==1)
      cout<<x;
else
      cout<<y
```

Q5   Trace all errors in the following program.

(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   return 0;
14
```

Q6   Define the output and draw a flow chart for the following program.

(10 marks)

Program Code	Output

```#include <iostream>```
 ```using namespace std;```
 ```int main()```
 ```{```
 ```   int count = 5;```
 ```   cout << count << endl;```
 ```   count++;```
 ```   cout << count << endl;```
 ```   ++count;```
 ```   count -= 6;```
 ```   cout << count << endl;```
 ```   cout << count++ << endl;```
 ```   cout << --count << endl;```
 ```   cout << count++;```
 ```   cout << endl;```
 ```   count = count * 3;```
 ```   cout << count << endl;```
 	
 ```   return 0;```
 ```}```	

Q7   Write a single C++ statement or line that accomplishes each of the followings:

(a) Assign the division operator of variables *P* and *A* to variable σ.

(1 mark)

(b) Print the message "Total for three digits".

(1 mark)

(c) Instead of a = a + 1, we can write using increment operator as _____.

(1 mark)

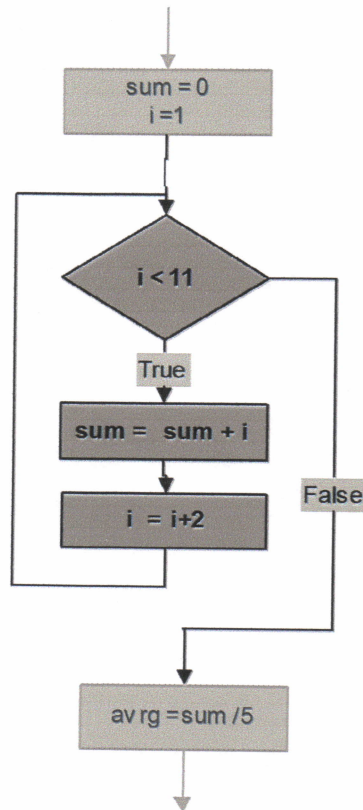(d) Input four integer values from the keyboard into integer variables a, b, c and d.

(1 mark)

(e) Add x with 2, square root it and stored into y.

(1 mark)

Q8   Based on the given flowchart, identify the output of the average of odd numbers from 1 to 9. Construct the algorithm based on the flow chart.

(10 marks)

```
        ┌──────────────┐
        │   sum = 0    │
        │   i = 1      │
        └──────┬───────┘
               │
        ┌──────▼───────┐
    ┌──►│    i < 11    │──── False ──┐
    │   └──────┬───────┘             │
    │        True                    │
    │   ┌──────▼───────┐             │
    │   │ sum = sum + i│             │
    │   └──────┬───────┘             │
    │   ┌──────▼───────┐             │
    └───│   i = i+2    │             │
        └──────────────┘             │
               ┌─────────────────────┘
        ┌──────▼───────┐
        │ av rg = sum /5│
        └──────┬───────┘
               ▼
```

Q9   Define the conditional statement and give a suitable example for it.

(5 marks)

Q10   Write a C++ program to find the output of the following series:

$$\text{sum} = R - \frac{x^3}{5!} + \frac{x^5}{7!} + \frac{x^7}{9!} + \frac{x^n}{(n+2)!}$$

(10 marks)

SECTION C

Q11   Construct a flowchart and write a complete C++ code which will ask user to key in the pH level of a water sample to find out its pH range and biological effects according to **Table 1** to decide whether a solution is very acidic, acidic, neutral, alkaline, or very alkaline.

(30 marks)

Q12   Create a flowchart and write a complete C++ code that calculates the loan information of a car loan as shown in **Table 2**. The flowchart and C++ code should be able to provide the user to enter the amount and the number of years of the loan. Each loan will be charged with 3% interest per year.

(30 marks)

-END OF QUESTIONS –

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FINAL EXAMINATION

SEMESTER / SESSION : SEM II / 2015/2016   PROGRAMME CODE : BFF
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Table 1

pH range	Type of solution	Biological effetcs
0-2	Very acidic	All fish die
3-6	Acidic	most fish die
7	Neutral	Optimum for most fish
8-11	Alkaline	Most fish die
12-14	Very alkaline	All fish die

Table 2

Enter the amount of loan: **90000**
Enter the number of years: **7**

LOAN INFORMATION:

Total Interest   : RM 18900.00
Total Payment   : RM 108900
Monthly Payment   : RM 1296.43