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Gautam Buddha University

Mid Semester Examinations

M.Sc. Applied Mathematics First Semester, (September, 2013)

Course Name: Fundamentals of Computer Programming — Maximum Marks: 50
Course Code: MA-413 — Time: 2:00 Hours

NOTE: Attempt **all** the questions.

Q.**1.** Attempt ALL parts of the following: $(5 \times 2 = 10)$

(a) What are the major differences between main memory and external memory?

(b) Write the name and purpose of $<<$ and $>>$ operators.

(c) A program runs without any errors being reported but outputs results that are wrong, what type of error is likely to have caused this? Illustrate.

(d) To what do the following expressions evaluate? $(17/3), (17\%3), (1/2), (1/2)*(x+y)$

(e) Write the name and syntax of any two decision statements.

Q.**2.** Attempt ALL parts of the following: $(2 \times 5 = 10)$

(a) What do you understand with data type in C++. Please discuss any four data types.

(b) Write a simple program to illustrate variables, keyword, data types, operators etc. used in C++

Q.**3.** Attempt ALL parts of the following: $(2 \times 5 = 10)$

(a) Correct the program given below -

```
include <iostream.h>
int main ()
{
        float a =5;
        int b(2);
        int result;

        a = a + 1;
        result = a - b;
        cout << result;
}
```

(b) Write a program to evaluate the fuel consumption of a car. The reading at the start and end of the journey should be read, and also the fuel level in the tank at the start and end of the journey. Calculate fuel used, meters travelled, and ahence the overall fuel consumption in meters travelled per 1000 litre of fuel.

P.T.O.

Q.**4.** Attempt ALL parts of the following: $(2 \times 5 = 10)$

(a) A program is required which will read in the breadth and height of a rectangle and which will output the area and the length of the perimeter of the rectangle. Write an algorithm for this problem. Write C++ code too.

(b) Percentage marks attained by a student in three exams are to be entered to a computer. An indication of Pass or Fail is given out after the three marks are entered. The criteria for passing are as follows: A student passes if all three examinations are passed. Additionally a student may pass if only one subject is failed and the overall average is greater than or equal to 50. The pass mark for an individual subject is 40. Write a C++ program to implement this task..

Q.**5.** Attempt ALL parts of the following: $(2 \times 5 = 10)$

(a) Write a program using decision statement if and ifthenelse

(b) Correct the syntax errors in the following C++ program:

```
include iostream.h
Main();
{
Float x,y,z;
cout < "Enter two numbers "; cin >> a >> b
cout << 'The numbers in reverse order are'
<< b,a;
}
```