



EASTERN UNIVERSITY, SRI LANKA
DEPARTMENT OF MATHEMATICS
FIRST EXAMINATION IN SCIENCE – 2010/2011
SECOND SEMESTER (June, 2013)
CS 104 – OBJECT ORIENTED PROGRAMMING TECHNIQUES
(Proper & Repeat)

Answer all questions

Time: 2 Hours

Q1.

- a) State what is meant by *Object Oriented Programming*.
- b) List any five principle features of the "*Object Oriented Methodology*".
- c) Give five examples for *Tangible objects* and *Intangible objects*.
- d) Define the following terms regarding the Object Oriented Methodology:
 - i. Object;
 - ii. Encapsulation;
 - iii. Data Abstraction.
- e) Briefly describe the following class or member modifiers:
 - i. public;
 - ii. private;
 - iii. protected.
- f) What is meant by **class** and give its general syntax.

Q2.

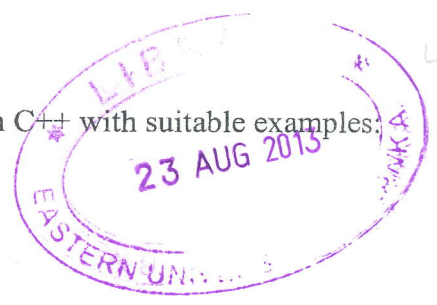
- a) Define the C++ function and give its general form.
- b) State the use of *constructor* and give its general syntax.
- c) List four special characteristics of constructor.
- d) Briefly describe the types of constructors.
- e) State the main use of *destructor* and give its general syntax.
- f) Find the output of the following program:

```
#include<iostream.h>
void main ( )
{
    int Track [ ] = {10, 20, 30, 40}, *Striker ;
    Striker=Track :
    Track [1] += 30 ;

    cout<<"Striker"<<*Striker<<endl ;
    Striker -- =10 ;
    Striker++ ;
    cout<<"Next@"<<*Striker<<endl ;
    Striker+=2 ;
    cout<<"Last@"<<*Striker<<endl ;
    cout<< "Reset To" <<Track[0] <<endl ;
}
```

Q3.

- a) What is meant by an *Operator Overloading*?
- b) What are the steps that involve in the process of overloading?
- c) Describe *unary* and *binary* operator overloading.



- d) Briefly describe the following type conversions in C++ with suitable examples:
 - i) Implicit conversion;
 - ii) Explicit conversion.
- e) Write a sample C++ program for overloading the assignment (=) operator.
- f) Briefly explain:
 - i) what will happen in a *while loop* if the control condition is false initially?
 - ii) what is wrong with the following loop:

```
while (n <= 100)

Sum += n*n;
```

- iii) what is wrong with the following program:

```
int main()
{
    const double PI;
    int n;
    PI = 3.14159265358979;
    n = 22;
}
```

- iv) why cannot ****** be overloaded as an exponentiation operator?
- v) how many constructors can a class have, and how should they be distinguished?

Q4.

- a) Define what is meant by *inheritance* and give its general format.
- b) State any five advantages of inheritance.
- c) Briefly describe the types of inheritance.
- d) State what is meant by *polymorphism*.
- e) Give different types of polymorphism and describe them.

f) Write details of the following C++ classes:

- i) filebuf;
- ii) fstreambase;
- iii) ifstream;
- iv) ofstream.

g) Write a program to open a file "Hello.dat" in C++ and write the following into the file.

"This is only a test"

"Nothing can go wrong"

"All things are fine..."