EASTERN UNIVERSITY , SRI LANKA

EXTERNAL DEGREE FIRST EXAMINATION IN SCIENCE (2003/2004)

SECOND SEMESTER (October,2007)

EXTCS 104 – OBJECT ORIENTED PROGRAMMING TECHNIQUES

(Proper & Repeat)

Answer all questions   Time: One hour

Question 1

a)

Write a C++ program using classes and objects to simulate result preparation system for twenty students.The data available for each student includes index,name and marks in three subjects.
The percentage marks and grade are to be calculated from the following information . The percentage marks are the average marks and the grade is calculated as follows:

Percentage marks(x)	grade
$x<50$	F
$50 \leq x < 60$	D
$60 \leq x < 75$	C
$75 \leq x < 90$	B
$90 \leq x < 100$	A

(50 marks)

(5*10 =50 marks)

(b)
- (i) How does C++ organize memory when a program is run?
- (ii) Differentiate between static and dynamic allocation of memory
- (iii) What do you understand by memory leaks? What are the possible reasons for it ? How can memory leaks be avoided?
- (iv) What do you understand by copy constructor,destructor?
- (v) What do you understand by late binding and early binding in C++ programming ? Give the advantages and disadvantages of late binding and early binding.

Question 2

(a)
Given the following set of definitions. What data members and functions are directly accessible by the functions mentioned here?

```
void inform(void);
  class X { int a;  float b ;
          void int(void);
          public :
            char ch ; void gett(void);
          protected :
            double amt;
            void getamt(void);
            friend void A (void)  ;
  };

  class Y : public X
        {
          int x;
          public :
                int j ;
                void readit (void);
          protected :
                void inform (void);
                friend void B (void);
        };
        void display (void);                    (50marks)
```

(b)
    (i) Define operator overloading.
    (ii) What are the rules for operator overloading?
    (iii) Explain with an example how the Operator Symbol '+' to
        be overloaded using operator overloading?.
                        (50marks)