



UNIVERSITY EXAMINATION 2010/2011
SCHOOL OF PURE AND APPLIED SCIENCES
DEPARTMENT OF INFORMATION TECHNOLOGY
EXAMINATION FOR BACHELOR OF BUSINESS INFORMATION TECHNOLOGY

BIT 3201: OBJECT ORIENTED PROGRAMMING

December, 2011

Instructions:

Answer question *ONE* and any other *TWO* questions

Time: 2Hours

QUESTION ONE (30 MARKS)

A motor dealer makes an order for various items. An order comprises a list of required parts each identified by part-number, name-of-item, and item-price. It is possible to perform operations like adding an item in the order list, deleting an item from the list and printing the total value of the order.

Required:

- a) Identify the class (es) in the above description and construct a class diagram showing any relationship, the operation and data members. (4 marks)
- b) State the three visibility modes that can be used in implementing a class. (3 marks)
- c) Implement- using C++ code- a program that will allow: (13 marks)
 - Adding an item into the list
 - Deleting an item from the list
 - Printing the total value of the order

The program should present a menu for user to input new items or to display the contents of order in a columnar format with the heading of part Number, Part Name and Price.

A date should appear at the top.

- d) Using the switch write a program to emulate simple Calculator with operators +/-% (10 marks)

QUESTION TWO (20 MARKS)

- a) Using elements, distinguish between a class and an object: (6marks)
- b) State and explain three types of constructors (6marks)
- c) What will be the output from the program below: (4marks)

```
#include "bankacct.h"
#include <iostream.h>
{
account1.setAccountNumber(100)
```

```

account1.setAccountNumber(110)
account1.setAccountNumber(120)
cout<<"Account Numbers Are"<<endl;
cout<<account1.getAccountNumber()<<endl;
cout<<account2.getAccountNumber()<<endl;
cout<<account3.getAccountNumber()<<endl;

```

{

d). Distinguish between a copy constructor and a user define copy constructor (4marks)

QUESTION THREE (20 MARKS)

- a) Define the term inheritance as used in object oriented programming (2marks)
- b) Distinguish between the following terms (4marks)
 - i. Base class and derived class
 - ii. specialization and Generalization

c). Below is a base class program representing a single integer and two methods setX and get X

```

class BaseClass
{
Private:
    int X;
public:
Void setX(intx_in)
{
x=x_in;
}

int getX();
{
return x;
}
};

```

Demonstrate in a program how a derived class with its on attribute Y can inherit attribute 'x' and have access to its public methods setX and getX (8marks)

- d). Using examples, explain the following object oriented programming (6marks)
 - i. Association,
 - ii. Aggregation,
 - iii. Generalization

QUESTION FOUR (20 MARKS)

a) Distinguish between Cohesion and coupling (2Marks)

- b) Distinguish between a public and private variables as used in object oriented programming (4Marks)
- c) The program below shows how class JobQueue may be used by methods queueHandler using C++. Write an equivalent Java implementation of the Method. (8 Marks)

Class scheduler

```
{
```

Public:

```
Void queueHandler ()
```

```
{
```

```
    int          jobA, jobB;  
    JobQueue     JobQueue;  
    // various statements  
    jobQueue.initializeJobQueue ();  
    //More statements  
    jobQueue.AddJobQueue (JobA);  
    jobB=jobQueueJ.removeJobFromQueue();
```

```
}
```

```
}
```

- d). Define modularity and explain its two benefits (6Marks)

QUESTION FIVE (20 MARKS)

- a) Using the concept of filing, write a C++ program for computing the largest of three numbers (10 marks)
- b) Using user-define function write a C++ program for computing area of a circle. The user- define function should enable the inputting of Radius of the circle (5 marks)
- c) Compare one- dimensional and two dimensional array. Using C++ code, implement a program that creates one- dimensional array data structure. (5 marks)