



A Constituent College of Kenyatta University

**UNIVERSITY EXAMINATIONS 2010/2011 ACADEMIC YEAR**

**INSTITUTIONAL BASED PROGRAMME**

**1<sup>ST</sup> YEAR EXAMINATIONS FOR THE DIPLOMA IN INFORMATION TECHNOLOGY.**

**COURSE CODE/ TITLE: SCT D 112: OBJECT ORIENTED PROGRAMMING**

**END OF SESSION III**

**DURATION: 2 HRS**

**DAY/TIME: FRIDAY 12.00 -3.00PM**

**DATE: 9.12.2011(A1)**

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Attempt **ALL** questions from **Section A** and any **Two** question from **section B**

**SECTION A (40 Marks)**

- a) Explain the following types of errors that can occur in program
  - Syntax error
  - Logical error
  - Run time error **(6 marks)**
- b) Explain what is meant by 'Comment' as applied to programming **(2 marks)**
- c) Explain with an example how comments are written in programming **(1 mark)**
- d) Explain the following
  - i. Variable
  - ii. Constant **(4 marks)**
- e) State **three** rules must be followed when declaring variables **(3 marks)**
- f) Explain the following concepts
  - i. Class

- ii. Objects
- iii. Data encapsulation. **(6 marks)**
- g) To evaluate a comparison between two expression we use relational and equality operators. State three operators used. **(3 marks)**
- h) Discuss any **four** primary mathematical operators used in C++ **(4 marks)**
- i) Discuss any four data types used in C++ **(4 marks)**
- j) All the variables that we intend to use in a program must have been declared. Discuss the two scopes of variables **(4 marks)**
- k) Inheritance describes a relationship between two or more types of objects in which one is said to be a subtype of the other. Differentiate between generalization and specialization **(3 marks)**

### **SECTION B (30 Marks)**

#### **Question Two (15 marks)**

- a) Before programs can be executed they must be translated into machine language through translators. Differentiate between Compiler and interpreters **(4 marks)**
- b) Write down the code you will use to calculate the circumference of a circle by prompting the user to input the radius. Assume  $\text{Pi} = 3.14$  **(11 marks)**

#### **Question Three (15 marks)**

- a) When declaring a regular local variable, its value is by default undetermined, but you may want a variable to store a concrete value at the same moment that it is declared. Explain two ways of initializing a variable **(4 marks)**
- b) State the output of the following piece of code;
 

```
#include<iostream>
Using namespace std;
Int main ( )
{
Int A, J, ans;
```

```
A=20;
J=4;
Ans=A/J;
Cout<<"First output"<<ans;
Ans=20*4;
Cout<<"Second output"<<ans<<"\n";
Return 0;
}
```

**(6 marks)**

- c) Explain the use of the following statements **(5 marks)**
- i. Break
  - ii. Continue

#### **Question Four (15 marks)**

- a) An object is a composed of members and methods. Show how you will represent the object PERSON. **(4 marks)**
- b) Describe the following terms
- i. Inheritance
  - ii. Aggregation
  - iii. Composite object** **(3 marks)**
- c) State the standard functions used to input and output data in C++. **(4 marks)**
- d) Describe how you will declare a constant VAT=16%. **(4 marks)**