

QP CODE 2023514303

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DMI-ST. EUGENE UNIVERSITY

ZAMBIA

DEGREE EXAMINATION – DECEMBER 2024

Semester: II 351CP14 OBJECT ORIENTED PROGRAMMING USING C++

Time: 3:00 Hours

Max. Marks: 100

Answer any FIVE Questions (5 x 20 = 100 Marks)

1. a) State THREE advantages that object-oriented programming offers to software development. **(6 Marks)**
b) Describe parallel processing approach as a programming paradigm. **(4 Marks)**
c) Describe the Key characteristics of object oriented programming. **(10 Marks)**
2. a) State FIVE types of variables. **(5 Marks)**
b) Write the output of the following program.

```
#include <iostream>
#include <iomanip>
using namespace std;
int main() {
int x = 49, y = 29; g=1;
while (g > 0) {
    g= x % y
    cout <<g << endl;
    x = y;
    y = g;
}
return 0;}
```

(5 Marks)
c) Write a C++ program to find the largest element of a given array of 5 integers. **(10 Marks)**
3. a) Describe at least three type of functions used in a C++ class. **(6 Marks)**

- b) Describe copy constructor and write the syntax. **(4 Marks)**
- c) Write a C++ to calculate the area of a shape in which private member variables are initialized by a parameterized constructor. The program should have the class Shape with private member variables length and width. And the constructor shape() and the function displayArea() to calculate and display the area of the shape. **(10 Marks)**
4. a) Describe FIVE types of inheritance in C++ with their syntaxes. **(10 Marks)**
- b) Explain the compile time polymorphism in C++. **(5 Marks)**
- c) What is the order of calling constructors in C++ inheritance by an object of the derived class? **(5 Marks)**
5. a) Explain the use of the following header files in file processing in C++, **(4 Marks)**
- (i) iostream
- (ii) fstream.
- b) What is the use of the following member functions, **(6 Marks)**
- (i) get()
- (ii) put()
- (iii) seekg()
- c) Write a program in C++ to read a text file and to display the contents on the screen. **(10 Marks)**
6. a) Explain multipath inheritance in C++ with an example. **(10 Marks)**
- b) Explain the explain how a parameterized constructor is called in C++ inheritance. **(5 Marks)**
- c) What is meant by operator overloading? **(5 Marks)**
7. a) Explain the use of the following functions in C++ file processing. **(4 Marks)**
- (i) Open()
- (ii) Close
- b) Describe the THREE types of file access in C++ file processing. **(6 Marks)**
- c) Write a program to read and display the contents of a text file. **(10 Marks)**