

3E1139	Roll No.	Total No of Pages: 4
	3E1139 B. Tech. III - Sem. (Main) Exam., Dec. - 2018 PCC Computer Science & Engineering 3CS4 – 06 Object Oriented Programming CS, IT	

Time: 3 Hours

Maximum Marks: 120

Instructions to Candidates:

Attempt all ten questions from Part A, selecting five questions from Part B and four questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL

2. NIL

PART – A

(Answer should be given up to 25 words only)

[10×2=20]

All questions are compulsory

Q.1 What is copy constructor? Explain with suitable example.

Q.2 What is the purpose of using overloading operators?

Q.3 What is the output of the program

```
#include<iostream.h>
void main()
{
    int n=1;
    cout<<endl<<"The numbers are;"<<endl;
    do
    {
        cout<<n<<"\t";
        n++;
    } while (n<=100);
    cout<<endl;
}
```

- Q.4 Name the operators which cannot overload. What is the significance of scope resolution operators (::)?
- Q.5 What are the differences between class and structure in terms of memory allocation?
- Q.6 What are the differences between member function of a class and friend function?
- Q.7 What is Run-Time Error, Logical Error and Syntax Error?
- Q.8 Write a C++ program to implement pure virtual function.
- Q.9 What is the role of public, private and protected access specifiers within the class?
- Q.10 Write a C++ program using function template to swap two values.

PART – B.

(Analytical/Problem solving questions)

[5×8=40]

Attempt any five questions

- Q.1 Write short notes on the following: [4×2=8]
- (a) Dynamic Binding
 - (b) Abstract Class
 - (c) New & delete
 - (d) Function Overriding
- Q.2 Design a class having the constructor and destructor functions that should display the number of objects being created or destroyed of class type. [8]
- Q.3 Write a template function that returns the average of all the elements of an array. The arguments to the function should be the array name and the size of the array (type int). In main (), exercise the function with arrays of type int, long, double, and char. [8]
- Q.4 Create a time class that includes integer member values for hours, minutes and seconds. Make a member function get_time() that gets a time value from the user, and a function put_time() that displays a time in 12:59:59 format. Add error checking to the get_time() function to minimize user mistakes. This function should request hours, minutes and seconds separately, and should check that the range should be in between 0 and 23, and minutes and seconds between 0 and 59. [8]

Q.5 Write an inline function, factorial (int x), which returns the factorial of value x. Test the function by reading values from the keyboard. [8]

Q.6 Use for loops to construct a program that displays a pyramid on the screen. The pyramid should look like this [8]

```
1
121
12321
1234321
123454321
```

Q.7 What do you mean by Programming Paradigm? Describe the concept of message passing in Object Oriented Programming. http://www.rtuonline.com [8]

PART – C

(Descriptive/Analytical/Problem Solving/Design Questions) [4×15=60]

Attempt any four questions

Q.1 Write a C++ program which will implement '=' binary operators. The overload class should contain one parameterized constructor to initialize default value to the member variable, and a display function to display value of member variables.

Q.2 Write C++ Program for the following statements.

(a) What do you mean by inheritance? Implement multilevel inheritance with suitable example.

(b) Write a C++ Program which will implement static function, friend function and member function of a class.

Q.3 Create a Class named "student" that contains roll_number, stu_name and course_name, father_name, DOB as data member and Input_student and display_student as member functions. Create A derived class named "exam" from the class named "student" with publicly inherited mode. The derived class contains members as mark1, mark2, mark3 as marks of three subjects and input_marks and display_results as member functions. Create an array of object of the "exam" class and display the result of 10 students.

Q.4 Handle the following exceptions to input two integers from keyboard to perform division operation.

- (a) A try block to throw an exception when a wrong type of data is entered.
- (b) When division by zero occurs.

Write appropriate catch block to handle above exceptions which are thrown from "thrown block".

Q.5 Write a C++ program using file handling to perform the following operations.

- (a) A file named 'data.txt' contains number from 0 to 100. Open the 'data.txt' file in read mode.
- (b) Read data from 'data.txt' file.
- (c) If the number is odd, open a new file named 'odd.txt' and write the odd number into 'odd.txt' file. <http://www.rtuonline.com>
- (d) If the number is even, open a new file named 'even.txt' and write the even number into 'even.txt' file.
- (e) Display the data of all the files.

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