PLC144

RAMAIAH
Institute of Technology

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(Autonomous Institute, Affiliated to VTU)
(Approved by AICTE, New Delhi & Govt. of Karnataka)
Accredited by NBA & NAAC with 'A+' Grade

SEMESTER END EXAMINATIONS – MAY 2023

Program	:	**B.E :- Common to CSE / ISE / CSE(CY) / AI & DS / BT / AI & ML / CSE (AI&ML) / CV**	**Semester**	: **I**
Course Name	:	**Introduction to C++ Programming**	**Max. Marks**	: **100**
Course Code	:	**PLC144**	**Duration**	: **3 Hrs**

Instructions to the Candidates:

- Answer one full question from each unit.

UNIT - I

1.	a)	What is object oriented programming? Distinguish between OOP and procedure oriented programming.	CO1	(08)
	b)	Define the following term: Data abstraction, data encapsulation, Data hiding.	CO1	(06)
	c)	Write a C++ program to find the area and perimeter of a circle.	CO1	(06)
2.	a)	Define the following term with relevant examples: classes and objects , Inheritance , polymorphism.	CO1	(08)
	b)	With an example explain the concept of abstract classes.	CO1	(06)
	c)	Write a C++ program to get the name, age and salary of a person and display the same.	CO1	(06)

UNIT - II

3.	a)	What are arrays? Explain the different way to initialize single dimensional arrays in C++?	CO2	(08)
	b)	What is the role of the scope resolution operator in C++? Explain with an example program.	CO2	(06)
	c)	Write a C++ program to find whether the entered number is palindrome or not.	CO2	(06)
4.	a)	What is an entry controlled loop? Explain with an example the syntax and workingof "for" loop in C++.	CO2	(08)
	b)	Explain the different ways to create constant in C++.	CO2	(06)
	c)	Write a C++ program to find sum of all the elements, maximum and minimum element in an array.	CO2	(06)

UNIT - III

5.	a)	Explain the following with an example: i) Function with arguments and with return value ii) Function without arguments and without return value.	CO3	(06)
	b)	Write a C++ program to create a class called bank_acct with following data member(cust_name, cust_accno, balance) and member functions (read_details, deposit, withdraw, display balance). Read and display details using array of objects and implement deposit and withdraw using inline.	CO3	(08)
	c)	Describe hybrid inheritance in C++ with an example.	CO3	(06)

6. a) Demonstrate the concept of call by reference with an example. CO3 (06)
   b) Create a C++ class that includes constructors to do the following. CO3 (08)
      - Create an uninitialized string.
      - Initialize an object with a string constant.
      - Create an object and initialize with another object. Also write a function to concatenate two strings.
   c) Illustrate multiple inheritance in C++. CO3 (06)

UNIT- IV

7. a) Explain the following: i) ifstream ii) ofstream iii) fstream. CO4 (06)
   b) Write a C++ program involving working with a single file. Use if stream and ofstream classes to write and read the information to and from a file using operators: << and >>. Show how a file can be opened and closed. CO4 (06)
   c) Write a C++ program to read the contents from a text file, count and display the number of alphabets present in it. CO4 (08)

8. a) With example for each, illustrate various ways of opening files. CO4 (08)
   b) Write a program that requests for a string, writes it to the file character by character. Then the program should display the contents of file on the screen. CO4 (08)
   c) List and explain any four file mode parameters. CO4 (04)

UNIT - V

9. a) Compare and contrast error and exception. CO5 (06)
   b) Write a C++ program to detect and catch divide – by – zero problem. Comment on results for run with no exception and with exception thrown. CO5 (06)
   c) Write a C++ program that creates a Calculator class. The class contains two variables of integer type. Design a constructor that accepts two values as parameter and set those values. Design two methods named Add (), Subtract () for performing addition, subtraction of two numbers. For addition and subtraction, two numbers should be positive. If any negative number is entered then throw an exception in respective methods. So design an exception handler (Arithmetic Exception) in Add () and Subtract () methods respectively to check whether any number is negative or not. CO5 (08)

10. a) List down the keywords used in exception handling and illustrate their usage with an example for each. CO5 (06)
    b) Write a C++ program to demonstrate the try block invoking a function that generates an exception. CO5 (06)
    c) Write a C++ program that creates a Calculator class. The class contains two variables of integer type. Design a constructor that accepts two values as parameter and set those values. Design two methods named multiply (), divide () for performing multiplication, division of two numbers. For division and multiplication, two numbers should not be zero. If zero is entered for any number then throw an exception in respective methods. So design an exception handler (Arithmetic Exception) in multiply () and Division () methods respectively to check whether any number is zero or not. CO5 (08)

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