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RV COLLEGE OF ENGINEERING®

(An Autonomous Institution affiliated to VTU)

I / II Semester B. E. Regular / Supplementary Examinations Feb-2024

Common to all programs

INTRODUCTION TO C++ PROGRAMMING (ELECTIVE)

Time: 03 Hours ***Maximum Marks: 100***

Instructions to candidates:

1. Answer all questions from Part A. Part A questions should be answered in first three pages of the answer book only.
2. Answer SIX full questions from Part B. In Part B question numbers 2 and 11 are compulsory. Answer any one full question from 3 and 4, 5 and 6, 7 and 8 & 9 and 10. Question number 11 is lab component.

PART-A

1	1.1	What is namespace? Give an example.	02
	1.2	Illustrate friend function with an example.	02
	1.3	How abstract classes are different from regular classes.	02
	1.4	What do you mean by exception handling? Give an example.	02
	1.5	Define the following: i) List ii) Map.	02

PART-B

2	a	Explain the salient features of object oriented programming.	07
	b	With an example explain the working of constructors and destructors.	07
3	a	What are inline functions? Discuss the advantages of inline functions with an example.	07
	b	Define static data members and static member functions of a class. Explain with an example.	07
		OR	
4	a	Write a note on the following: i) Interface ii) Encapsulation	10
	b	Explain the use of scope resolution operator in $C++$.	04
5	a	Write a $C++$ program to calculate the volume of different shapes with the concept of function overloading.	08
	b	Define default arguments. Explain with an example.	06
		OR	
6	a	Illustrate the working of virtual base class with an example program.	08
	b	Demonstrate the overloading of $++$ and $--$ operators using friend function.	06

7	a	Write a $C++$ program to demonstrate the use of multiple catch statements.	08
	b	How are functions terminate() and unexpected () different from one another?	06
		OR	
8	a	How to restrict the exceptions and rethrow the exceptions with example program for each.	10
	b	Explain the process of handling derived class exceptions.	04
9	a	Define class templates. Explain with an example program of two generic datatypes.	10
	b	Write a short note on vector class.	04
		OR	
10	a	With the help of template class program, find out the largest of three objects.	08
	b	Differentiate between Compile-time and run-time polymorphism.	06
		LAB COMPONENT	
11	a	Implement the following requirement: An electricity board charges the following rates to domestic users to discourage large conceptions of energy. $0-100$ units : $Rs.1.50$ per unit $101-200$ units : $Rs.1.80$ per unit Beyond 200 units : $Rs.2.50$ per unit All users are charged a minimum of $Rs.50$. If the total amount is more than $Rs\,300$ then an additional surcharge of 15% is added. The $C++$ program must read the names of users, number of units consumed and display the calculated charges.	10
	b	Design and implement a $C++$ program using class to process grocery list for a customer in a store. The list includes details such as the Name, Price of each item and operations like billing on an order.	10