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B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

October 2024 Supplementary Examinations

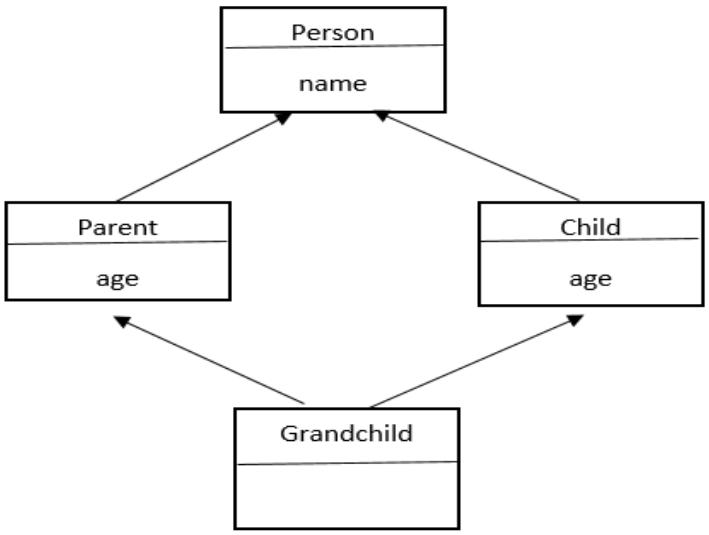
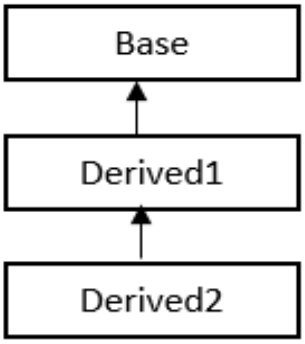
Programme: B.E. **Semester: III**
Branch: Information Science and Engineering **Duration: 3 hrs.**
Course Code: 23IS3PCOOP **Max Marks: 100**
Course: Object Oriented Programming Using C++

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

		UNIT - I	*CO*	*PO*	Marks
1	a)	Distinguish between the following terms i) Data abstraction and Data encapsulation ii) Inheritance and Polymorphism			**06**
	b)	Analyze the difference between Call by reference and Call by value. Write the program to swap two numbers using call by reference.	*CO2*	*PO2*	**06**
	c)	Create a student class that holds the name and age of the student. Using the accessor and mutator functions, print at least five student details using the concept array of objects.	*CO1*	*PO1*	**08**
		UNIT - II			
2	a)	Identify the need for inline functions. Write the function to return the addition of two numbers using inline and appropriate main program.	*CO2*	*PO2*	**06**
	b)	Discuss any two potential ambiguities that can arise when using function overloading with default parameter values. Explain with programming example	*CO1*	*PO1*	**06**
	c)	Write a program to find largest of two numbers using friend function for two different classes. Why would you use a friend function instead of a member function?	*CO2*	*PO2*	**08**
		OR			
3	a)	Explain constructor and Destructor. List the types of constructors in C++? Explain each with example			**10**
	b)	Write a program to demonstrate passing objects as parameters.	*CO1*	*PO1*	**06**
	c)	Write a program to illustrate the concept of this pointer.	*CO1*	*PO1*	**04**
		UNIT - III			
4	a)	What are the rules and constraints for overloading operators?			**05**

		b)	Complete the given code by creating a class Time with appropriate member variables and member methods
			int main() {
			int duration;
			cout << "Enter time duration in minutes: ";
			cin >> duration;
			Time t1 = duration;
			t1.display();
			return 0;
			}
				CO2	*PO2*	**05**

		c)	As shown in the illustration, write a C++ program to construct the classes. Define all the four classes and write a program to create and display the information contained in Grandchild object. Also display the name of the grandchild, and calculate the parent age and child age for the year 2040 using necessary variables and member functions.  	*CO3*	*PO3*	**10**
			OR			
	5	a)	Identify the type of inheritance and write C++ program demonstrating the execution order of constructors and destructors for the given figure using necessary variables and member functions.  	*CO3*	*PO3*	**10**

		b)	Develop a C++ program to multiply two objects of 2D - arrays using operator ***** overloading. Create the array using dynamic constructors.	*CO3*	*PO3*	**10**
			UNIT - IV			
	6	a)	Develop a program to read the data stored in two separate files and write the data of first file into a third file also append the content of second file to the same file.	*CO3*	*PO3*	**08**
		b)	Illustrate the use of pointers as objects in the program.	*CO1*	*PO1*	**06**
		c)	Write a program to illustrate the use of pure virtual function.	*CO1*	*PO1*	**06**
			UNIT - V			
	7	a)	Develop function template for finding minimum value contained in an array. Demonstrate for two different data types.	*CO2*	*PO2*	**06**
		b)	Develop a class template which has minimal functionality of a calculator.	*CO3*	*PO3*	**06**
		c)	Write a program to illustrate all the keywords used in exception handling in C++.	*CO1*	*PO1*	**08**

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