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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Third Semester, B.E. - Computer Science and Engineering

Semester End Examination; Dec. - 2019

Object Oriented Programming with C++

Time: 3 hrs *Max. Marks: 100*

Note: i) PART - A is compulsory. **Two** marks for each question.
ii) PART - B: Answer any **Two** sub questions (from a, b, c) for Maximum of **18 marks** from each unit.

Q. No.	Questions	Marks
	I : PART - A	**10**
I a.	i) Write the main difference between Procedure Oriented Programming and Object Oriented Programming	1
	ii) State true or false: Friend functions have access to only public members of a class.	1
b.	i) Explain any two limitations of Constructors.	1
	ii) List the operators that cannot be overloaded.	1
c.	i) Write the order of execution of class A: public B, virtual public C	1
	ii) A base class is never used to create objects. State true or false.	1

d.	i) class example
	{
	public:
	virtual void example( ) = 0;
	};
	What does function example( ) indicates?
		1

	ii) State the error if any, cout << width( ) ;	1
e.	i) Write the syntax of function template with multiple parameters.	1
	ii) What is the significance of throw?	1
	II : PART - B	**90**
	UNIT - I	**18**
1 a.	Explain the basic concepts of Object Oriented Programming with suitable example.	9
b.	Write the steps in function overloading. Construct a C++ program to compute the area of a triangle and a circle by overloading the area( ) function.	9
c.	Write a C++ program to swap private data of a class.	9

Contd…2

UNIT - II **18**

2 a. Explain the concepts of overloading constructors. Write a program to display car features and specifications by overloading constructor. Let some arguments have default values. 9

b. Write a program to perform mathematical operations on strings using operators. (Hint string compare and string concatenation). 9

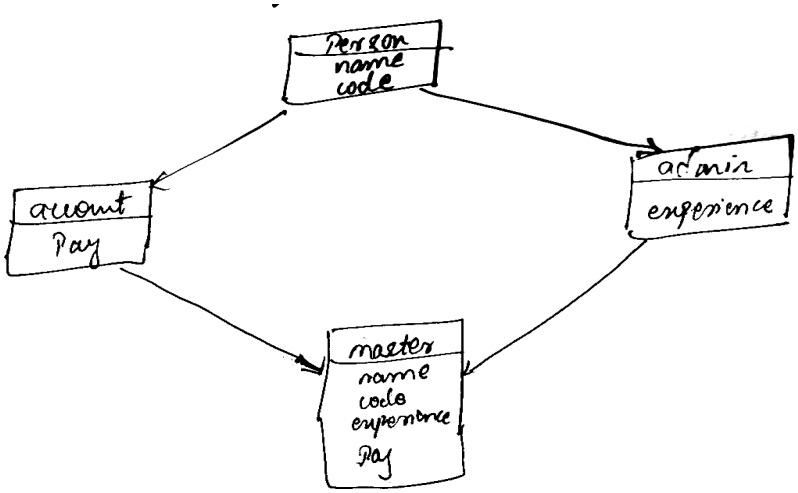
c. Explain different types of constructors. 9

UNIT - III **18**

3 a. With a neat diagram, explain access mechanism of visibility of members in a class. 9

b. Hybrid inheritance leads to ambiguity. Justify with a suitable example. 9

c. A shopkeeper wants to maintain the stock database category wise. Specify all the classes and functions as per the relationship between different products. Refer below figure.

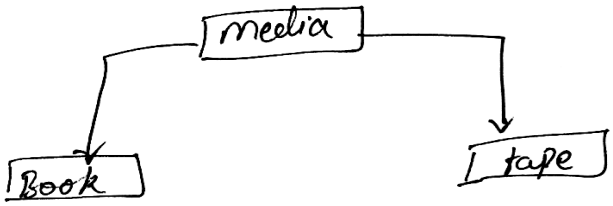


9

UNIT - IV **18**

4 a. Write the rules of virtual functions. 9

b.



9

Define necessary data and functions for the above class hierarchy and also define a display( ) functions as virtual function in base class. Write a program to support polymorphism.

c. With an example, explain ios format functions. 9

UNIT - V **18**

5 a. Write a program for selection sort using template function. 9

b. Explain multiple catch statements in exception handling to catch all exceptions statement. 9

c. What are containers? List and describe containers supported in STL. Explain different categories of containers. 9

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