

## S.E. (Comp.) (Semester – IV) (Revised 07 – 08) Examination, May/June 2010 OBJECT ORIENTED PROGRAMMING AND DESIGN USING C++

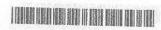
Duration: 3 Hours Total Marks: 100

Instructions: 1) Answer any five questions by selecting at least one from each Module.

2) Make suitable assumptions if required.

## MODULE - I

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1.	a)	<ul> <li>Create a class "complex" that enables operations on complex numbers:</li> <li>i) Overload the subtraction and addition operator to enable subtraction and addition of 2 complex number.</li> <li>ii) Overload the "&gt;&gt;" and "&lt;&lt;" operator to enable input and output of complex numbers.</li> </ul>	12
		Write a C++ program to test your class.	
	b)	When do we use the protected visibility specifier to class member? Explain with an example.	5
	c)	Explain the purpose of the following istream member functions:  i) peek  ii) putback  iii) ignore.	3
2.	a)	What is multiple inheritance? Write a C++ program to illustrate the same.	8
		Write a C++ program to display a number, its SQUARE and SQUARE ROOT, in the tabular format shown below:  NUMBER SQUARE SQUAREROOT	4
		waavaran ahaa ahaa 1 ***************************	
		2*************1.4142	
	c)	Write a C++ program to overload "++" operator as a post-increment and Pre-increment operator.	6
	d)	Differentiate between the following functions getline() and read().	2



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		Write a C++ program to perform 'binary search' on integers and floating	
	X S	point numbers using template functions.	8
	b	What are Exceptions? Explain the basic exception handling mechanism available in C++.	
	c)	Write a C++ program to create a sequential file and read data from it.	6
4.		What is a file mode? Explain the various file modes in C++.	4
		Write a class template to implement a stack and test it.	8
		Write a C++ program with the following:	
		i) A function to read two double type numbers from keyboard	8
		ii) A function to calculate the division of the two numbers	
		iii) A try block to detect and throw an exception if the condition "divide by zero" occurs	
		iv) Appropriate catch block to handle the exception thrown.	
		by When do we use the protected visibility specifier to class member ? Expla-	
		MODULE - III	
5.	a)	Explain the following:	
		i) #error dog (i	0
		ii) #pragma	
		iii) #include.	
	b)	Write a C++ program that will read a line of text containing more than 6 words and then replace all the blank spaces with an underscore.	É
	c)	Re-Implement the program using STL list: Representation of the second of	6
		Some member functions of list class are	8
		begin,clear,empty,end,erase,insert,pop_back,pop_front,push_back, remove,swap.	
6.	10		
0.		What is the difference between C++ string and C-style char* string? Write a C++ program to convert C-style char strings to C++ strings.	8
	b)	Explain # define preprocessor directive as symbolic constant give examples	6
	c)	List the various components of STL and explain each of them in brief.	6



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## SAL (Comp.) (Semester - 17) MODULE - IV

7.	a)	Draw an Use Case diagram for a library system,	6
	b)	Explain the concept of Generalization with respect to class diagrams. Give an example.	6
	c)	With help of an example, show the following elements in a state diagram :  i) Transition  ii) Start  iii) Activity	8
		iv) State  v) Self Transition.	
8.	a)	Consider a scenario for the normal operation of an ATM (i.e. a customer inserts a card, enters his/her PIN, enters the amount, takes the card and the money). Sketch a state diagram for the the above scenario with 2 technical errors.	
		- User enters wrong PIN number once or 3 times	
		- ATM does not have enough money.	8
	b)	Draw a use case diagram for a scenario of buying a product on web-based online store. Assume necessary information.	7
	c)	Write a note on Visibility in Class Diagrams	12