SCHEME OF VALUATION			
(Scoring Indicators)			
Revision : 2015			
Course Title: OBJECT ORIENTED PROGRAMMING THROUGH C++		Course Code : 3134	
Qst No	Scoring Indicator	Split up score	Total
	Part A		
I(1)	endl	1	2
	setw	1	
I(2)	A constructor is a member function of a class which initializes objects of a class		2
I(3)	A derived class with only one base class		2
I(4)	try,catch,throw		2
I(5)	Function prototype is the function declaration and is of the following form; return_type function-name (argument-list);		2
	Part B		
II(1)	It is a collection of dissimilar types variables referenced under one name. • 'struct' is used to define a structure • No memory space is shared by members • Any member is capable of being retrieved any time • The size of a structure is equal to the sum total of the sizes of all members	3	6
	Example	3	
II(2)	1.Integral type : – The data types in this type are int and char. The modifiers signed, unsigned, long & short may be applied to character & integer basic data type. The size of int is 2 bytes and char is 1byte.	2	6
	2.void void is used: • To specify the return type of a function when it is not returning any value. • To indicate an empty argument list to afunction.	2	
	3.Floating type: The data types in this are float & double. The size of the float is 4 byte and double is 8 byte. The modifier long can be applied to double & the size of long double is 10 byte.	2	
II(3)	call by value • Call by value passes the value of actual parameter to formal parameter. • Actual & formal parameter refer to different memory location. • It requires more memory. • It is less efficient	3	6
	Call by reference • Call by reference passes the address of actual parameter to formal parameter.		
	• Actual & formal parameter refer to same memory location. • It requires less memory. • It is more efficient.	3	

II(4)	The general form of a member function definition outside the class is:
	
	return-type class_name : : function name (argument declaration)
	
	{
	
	Function body
	
	}
	
	The membership label class-name :: tells the compiler that the function function-name belongs to the class class_name.
		3	6

	Example	3	
II(5)	A new class can be created from an existing class. The existing class is called the Base class or Super class and the new class is called the Derived class or Sub-class.	3	6
	Example	3	
II(6)	Any six of the following 1. Only existing operators can be overloaded. New operators cannot be created. 2. The overloaded operator must have at least one operand that is of user defined type. 3. We cannot change the basic meaning of an operator. 4. Overloaded operators follow the syntax rules of the original operators. They cannot be overridden. 5. There are some operators that cannot be overloaded. • Class member access operators(., .*). • Scope resolution operator (::) • Size operator (sizeof). • Conditional operator (?:).6. We cannot use friend functions to overload certain operators However. Member functions can be used to overload them. • Assignment operator ( ) Function call operator [] Subscripting operator -> Class member access operator 7. Unary operators, overloaded by means of a member function, take no explicit arguments and return no explicit values, but, those overloaded by means of a friend function, take one reference argument 8. Binary operators overloaded through a member function take one explicit argument and those which are overloaded through a friend function take two explicit arguments. 9. When using binary operators overloaded through a member function the left hand operand must be an object of the relevant class. 10. Binary arithmetic operators such as +, -, *, and I must explicitly return a value.They must not attempt to change their own arguments.	6×1	6
II(7)	A function preceded by virtual keyword by defining is known as virtual functions. Generally virtual functions are associated with base class. The virtual functions of the base class must be redefined inside the derived class.(this process is called method overriding).	3	6
	Example	3	

	Part C		

III(a)	while loop
	Syntax
	while(condition) {
	statement(s);
	}
		3	9

	Explanation and Example		

	do while loop
	Syntax
	do {
	statement(s);
	} while(condition);
		3	

	Explanation and Example		

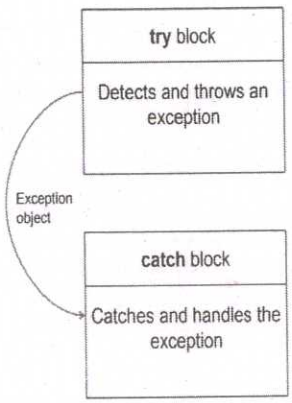
	for loop
	Syntax
	for (initialization; condition; increment) {
	statement(s);
	}
		3	

	Explanation and Example		
III(b)	Declaration	2	6
	Syntax	2	
	Logic	2	

IV(a)	**1.Automatic** :-Automatic storage class assigns a variable to its default storage type. auto keyword is used to declare automatic variables. If a variable is declared without any keyword inside a function, it is automatic by default. This variable is visible only within the function it is declared and its lifetime is same as the lifetime of the function as well.
	Syntax of Automatic Storage Class Declaration
	datatype var_name1 [= value]; or auto datatype var_name1 [= value];
	2.External:-External storage class assigns variable a reference to a global variable declared outside the given program. extern keyword is used to declare external variables. They are visible throughout the program and its lifetime is same as the lifetime of the program where it is declared.
	Syntax of External Storage Class Declaration
	extern datatype var_name1;
	3.Static:-Static storage class ensures a variable has the visibility mode of a local variable but lifetime of an external variable. It can be used only within the function where it is declared but destroyed only after the program execution has finished. When a function is called, the variable defined as static inside the function retains its previous value and operates on it.
	Syntax of Static Storage Class Declaration
	static datatype var_name1 [= value];
	4.Register:-Register storage assigns a variable's storage in the CPU registers rather than primary memory. It has its lifetime and visibility same as automatic variable. The purpose of creating register variable is to increase access speed and makes program run faster.
	Syntax of Register Storage Class Declaration
	register datatype var_name1 [= value];
		3×3	9

IV(b)	Declaration	2	6
	Syntax	2	
	Logic	2	
V(a)	class declaration	2	10
	display function definition	2	
	addition function definition	3	
	Logic	1	
	main function	2	

	~~main function~~		
V(b)	.A destructor is used to destroy the object that have been created by a constructor. The destructor is a member function whose name is the same as the class name but is preceded by a tilde. A destructor never takes any argument nor does it return any value. It will be invoked implicitly by the compiler upon exit from the program	5	5
VI(a)	Default Constructor-Constructor without any arguments are known as default constructors. Parameterized Constructor-A constructor which accepts arguments is knowns as parameterized constructor Copy Constructor:-A constructor which accepts reference of an object as in its argument is known as copy constructor	3×2=6	9
	Example for each	3×1=3	
VI(b)	The inline function is a function in which the compiler places a copy of the code of that function at each point where the function is called at compile time. To inline a function, place the keyword inline before the function name.	3	6
	Example	3	
VII(a)	Single Inheritance Multiple Inheritance Hierarchical Inheritance Multilevel Inheritance Hybrid Inheritance	3	9
	Examplanation for each	3	
	Example for each	3	
VII(b)	The process of making an operator to exhibit different behaviors in different instances is known as operator overloading.	1	6
	class and member function declaration	1	
	operator function definition	3	
	Logic	1	
VIII(a)	class and member function declaration	2	9
	operator function definition	3	
	Logic	2	
	main function	2	
VIII(b)	public — accessible inside and outside of class private — accessible inside the same class only protected — accessible in same class and derived classes	3	6
	Explanation for each	3×1=3	

IX(a)	An exception is an unexpected event that occurs during runtime and causes normal program flow to be disrupted. Some Examples are: – Divide by zero errors – Accessing the elements of an array beyond limit. – Invalid Input etc.. C++ exception handling is built upon three keywords: try, catch, and throw	1	8
	try key word is used to preface a block of statements which may generate exceptions. This block is known as try block When an exception is detected, it is thrown using the throw statement in the try block. The catch block catches the exception thrown by the try block. The catch block must be immediately follow the try block that throws the exceptions  	4	

	Syntax:
	.....
	.....
	try
	{
	.....
	throw exception; // or throw (exception);
	.....
	}
	Catch(type arg)
	{
	.....
	.....
	}
		3	

IX(b)	It is also known as generic class.
	A class can be declared to operate on different data types is called a template class
	The process of creating a specific class from a class template is called instantiation.
	General format of class template is:
	template <class T>
	class class_name
	{
	//.....
	//class member specification with
	//anonymous type T wherever appropriate
	//.....
	};
	In the case of class template the exact data type to the generic type is provided during object declaration using the syntax
	class name <data type> object_name;
		4	7

	Example	3	

X(a)	It is also known as generic function .
	A generic function defines a set of operations that will be applied to various types of data.
	A generic function can accept any type of input provided by the user.
	General form/Syntax
	template <class T>
	return type function_name(T arguments)
	{
	.....
	.....
	}
		4	8

	Example	4	
X(b)	A pure virtual function is defined as a virtual function without any definition . It is also known as do nothing or dummy function. Syntax virtual return_type function_name()=0;	4	7
	Example	3	