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ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)**B.E. /B.Tech / B. Arch (Full Time) - END SEMESTER EXAMINATIONS, APR / MAY 2024****CSE****II Semester****CS3201 – OBJECT ORIENTED PROGRAMMING****(Regulation 2023)**

Time:3hrs

Max.Marks: 100

CO1	Impart the skills needed for Object-oriented programming and Console applications development
CO2	Map real-world objects into programming objects
CO3	Implement the concept of reusability and data security
CO4	Write generic programs and handle exceptions
CO5	Create and process data in files using file I/O functions

BL – Bloom's Taxonomy Levels

(L1-Remembering, L2-Understanding, L3-Applying, L4-Analysing, L5-Evaluating, L6-Creating)

PART- A(10x2=20Marks)
(Answer all Questions)

Q.No.	Questions	Marks	CO	BL
1	List any 8 OOPS concepts.	2	CO1	L1
2	Find the errors and write for the following program. using namespace std; #include<iostream.h> class example { private: int data; static int count; public: example(int y=10) { data = y; } intgetincrement() {return ++data; } static intgetcount() { cout<<data; return count; } }; void main() { example E1,E2; E1.getcount(); E2=E1.getincrement(); E2.getcount(); }	2	CO1	L3
3	What is explicit type conversion? Give example.	2	CO2	L1
4	Predict the output for the following program. using namespace std; #include<iostream.h> static int Count = 0; class Test {	2	CO2	L3

	<pre> public: Test() { Count++; cout<< "No. of Object created: " << Count <<endl; } ~Test() { cout<< "No. of Object destroyed:" <<Count<<endl; Count--; } }; int main() { Test t, t1, t2, t3; return 0; } </pre>			
5	How does protected differ from private?	2	CO3	L1
6	What is pure virtual function? Give its syntax.	2	CO3	L2
7	Define namespace.	2	CO4	L1
8	What is the use of class template? Give example.	2	CO4	L2
9	Print the number 3.1246 using ios functions (set the width of 8, precision of 3 & fill the unused positions with *)	2	CO5	L3
10	List the sequence and associative containers.	2	CO5	L1

PART- B(5x 13=65Marks)
(Restrict to a maximum of 2 subdivisions)

Q.No.	Questions	Marks	CO	BL
11 (a) i	Write a C++ program to swap two variables using reference variable.	5	CO1	L3
ii	Perform addition of 2 matrices using pointers.	8	CO1	L3
OR				
11 (b)	Demonstrate function overloading for the addition of 2 numbers. The two number can be: 2 integers, 2 floats, 1 integer & 1 float, 1 float & 1 integer.	13	CO1	L2
12 (a) i	Create a class Polynomial with two data members namely, coefficient and an exponent. Write parameterized constructor to initialize the data members of polynomial and write copy constructor to copy one polynomial to another. Write a complete program to test the above.	6	CO2	L3
ii	Write a class called STRING having an array of characters as data member. Overload with != operator to compare the two STRING objects. If they are equal, zero is returned, otherwise one is returned.	7	CO2	L3
OR				
12 (b) i	Overload the -- operator in postfix form to decrement a complex number.	7	CO2	L5
ii	Write a program to define a function add that takes two int parameters and returns the sum. Write another function sub which takes two int parameters and returns the difference. Declare and use function pointer to invoke functions.	6	CO2	L3



13 (a)i	Explain the various modes of deriving subclasses, with suitable examples.	8	CO3	L2
ii	What is hybrid inheritance? What problem will occur in it? How do you resolve it? Explain with example?	5	CO3	L3
OR				
13 (b)	Define runtime polymorphism? How it is achieved in C++? Implement a book shop which sells both books and video-tapes. Create a Media class that stores the title and price of publication. Create two derived classes, one for storing the number of pages in a book and another class for storing the playing time of a tape. Function display() is used in all the classes to display the class contents.	13	CO3	L4
14 (a)	Explain the exception handling for the following a. simple try-catch, b. multiple try-catch, c. default catch, d. rethrow with suitable example.	13	CO4	L2
OR				
14 (b)	Write a program in C++ using function and class template to read two matrices of different data types such as integers and floating point values and perform addition operations on these matrices and display the resultant matrix.	13	CO4	L3
15 (a) i	Write a C++ program to count the number of words in a text file.	8	CO5	L3
ii	Explain the following unformatted I/O operations –cin, cout, put(), get(), getline().	5	CO5	L3
OR				
15 (b)	Write a C++ program to store the integer elements in a vector container & display the vector element, which is smaller than their adjacent right neighbors.	13	CO5	L3

PART- C(1x 15=15Marks)
(Q.No.16 is compulsory)

Q.No.	Questions	Marks	CO	BL
16.i	Create a class Account that stores customer name, Acc.no and balance. From the Account class, derive two classes namely, Current account and savings account. For Savings Account include credit and debit as member functions and for Current Account include credit as a member function. In Savings Account, an exception should be thrown if the debit amount exceeds 50,000.	8	CO4	L5
ii	Using file streams, concatenate the contents of second file with the firstfile & display the content of the concatenated file.	7	CO5	L5

