Reg. No.:

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Mid-Term Examinations, April 2021

Programme	:	**B.Tech-Computer Sceince and Engineering**	Semester	:	**Winter 2020-2021**
Course	:	**Object Oriented Programming with C++**	Code	:	**CSE2001**
Faculty	:	**Dr. K Venkatachalam**	Slot/Class No.	:	**E11+E12+E13/280**
Time	:	**1½ hours**	Max. Marks	:	**50**

Answer all the Questions

Q. No.	Question Description	Marks
1	Define a class BOOK in C++ with the following specifications : **Private members** of the class BOOK are BOOK NO integer type BOOKTITLE 20 characters PRICE float (price per copy) TOTAL_COST() A function to calculate the total cost for N number of copies where N is passed to the function as argument. **Public members** of the class BOOK are INPUT() function to read BOOK_NO. BOOKTITLE, PRICE PURCHASE() function to ask the user to input the number of copies to be purchased. It invokes TOTAL_COST() and prints the total cost to be paid by the user. Note : You are also required to give detailed function definitions.	**10**
2	Explain about function overloading and overriding with a suitable example.	**10**

3	Consider the definition of the following class:
	class Sample
	{
	private:
	int x;
	double y;
	public :
	Sample(); //Constructor 1
	Sample(int); //Constructor 2
	Sample(int, int); //Constructor 3
	Sample(int, double); //Constructor 4
	};
	i. Write the definition of the constructor 1 so that the private member variables are initialized to 0.
	
	ii. Write the definition of the constructor 2 so that the private member variable x is initialized according to the value of the parameter, and the private member variable y is initialized to 0.
	
	iii. Write the definition of the constructors 3 and 4 so that the private member variables are initialized according to the values of the parameters.
		10

4 Assume that a bank maintains two kinds of accounts for customers, one called as savings account and
the other as current account. The savings account provides compound interest and withdrawal facilities
but no cheque book facility. The current account provides cheque book facility but no interest. Current
account holders should also maintain a minimum balance and if the balance falls below this level, a
service charge is imposed.
Create a class Account that stores customer name, account number and type of account. From this derive
the classes Cur_acct and Sav_acct to make them more specific to their requirements. Include necessary **10**
member functions in order to achieve the following tasks:
(a) Accept deposit from a customer and update the
balance.
(b) Display the balance.
(c) Compute and deposit interest.
(d) Permit withdrawal and update the balance.
(e) Check for the minimum balance, impose penalty,
necessary, and update the balance.
Do not use any constructors. Use member functions to initialize the class members.

5 Write a C++ program to create menu driven calculator that performs basic arithmetic operations (add, subtract, multiply and divide) using switch case and functions. The calculator should input two numbers and an operator from user. It should perform operation according to the operator entered and must take input in given format.

```
<number 1> <operator> <number 2>
```

1. Input two numbers and a character from user in the given format. Store them in some variable say *num1*, *op* and *num2*.
2. Switch the value of *op* i.e. `switch(op)`.
3. There are four possible values of *op* i.e. `'+'`, `'-'`, `'*'` and `'/'`. **10**
4. For `case '+'` perform addition and store result in some variable i.e. `result = num1 + num2`.
5. Similarly for `case '-'` perform subtraction and store result in some variable i.e. `result = num1 - num2`.
6. Repeat the process for multiplication and division.
7. Finally print the value of *result*.

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