Reg. No. | | | | | | | | | | | | | |

B. E / B. TECH.DEGREE EXAMINATIONS, MAY 2023

Second Semester

CS18202 – OBJECT ORIENTED PROGRAMMING

(Computer Science and Engineering)

(Regulation 2018)

TIME:3 HOURS **MAX. MARKS: 100**

CO1	Students will be able to interpret the concepts of data abstraction, encapsulation and inheritance for problem solutions.	**4**
CO2	Students will be able to examine the problem and infer Object Oriented Concepts for practical problem solving.	**4**
CO3	Students will be able to appraise generic data type for the data type independent programming which relate it to reusability.	**3**
CO4	Students will be able to interpret and design the Exception handling techniques for resolving run-time errors.	**4**
CO 5	Students will be able to practice file I/O for large data set.	**2**

PART- A(10x2=20Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	What is the need for a friend function?	**1**	**2**
2.	State some applications of static members.	**1**	**2**
3.	How is polymorphism achieved in C++?	**2**	**2**
4.	Write the code snippet to overload the unary operator using friend function to negate the given value.	**2**	**2**
5.	What is a pure virtual function?	**3**	**2**
6.	State the need for an abstract class and pure virtual function with suitable example.	**3**	**2**
7.	Write a program using function template to swap the given two integer, float and char values.	**4**	**1**
8.	Write a function to catch a Divide by zero exception.	**4**	**1**
9.	State the difference between cbegin() and begin() in vectors?	**5**	**1**
10.	How do you serialize an object in C++?	**5**	**1**

PART- B (5x 14=70Marks)

			Marks	CO	RBT LEVEL
11. (a)	**(i)**	Write a program in C++ to calculate GPA of a student with pointer (student name), constant (student id) are data members.	**(8)**	**1**	**3**

	(ii)	Write a program in C++ to implement a Super market billing system using member functions.	**(6)**	**1**	**3**
		(OR)			
	(b)	Write a program in C++ using class and functions with default arguments to calculate interest for a fixed deposit account. The program should include functions to read,display,calculate interest and search for an account.	**(14)**	**1**	**3**
12. (a)		Write a C++ program to implement binary addition and subtraction operator overloading using friend functions for complex class. Also overload unary minus to negate the value of the complex number.	**(14)**	**2**	**4**
		(OR)			
	(b)	Write a C++ program to negate the values of a point by overloading unary operators, increment the x-coordinate and y-coordinate by Overloading ++ prefix and postfix versions respectively. Also add the given point values by overloading binary “+” using member function.	**(14)**	**2**	**4**
13. (a)		Write a program in C++ with class person which has basic details about a person, inherit class person to class employee and use necessary data members to calculate the net salary. Inherit class employee to class loan, inside which check whether the employee is eligible to avail loan based on his net salary. Print the result with employee details if the employee is eligible for availing loan. Use read and print functions in all the classes.	**(14)**	**3**	**3**
		(OR)			
	(b)	Write a C++ program with class student with student basic details. Inherit class student by class test which has mark details of students in 'm' subjects and compute test score which is the average of marks in 'm' subjects. Inherit class student by class sports to compute sports score which is the average of scores gained through various sports activities. Inherit class test and class sports by class result which calculates the final score of the student by giving 70% weightage to test score and 30% weightage to sports score. Use suitable read and print functions in the classes. Use virtual base class.	**(14)**	**3**	**3**

Q. Code:373689

14. (a)	Write a program in C++ to calculate student mark average for 'n' subjects using exception handling. Exceptions should be raised if the student roll number, marks and number of subjects are not valid.	**(14)**	**4**	**3**
	(OR)			
(b)	Write a C++ program to implement bubble sort using function templates. Sort integer, float and character arrays using the function template.	**(14)**	**4**	**3**
15. (a)	What is a file? Explain the various stream classes for handling files. Write a C++ program to read student name, roll number and percentage of "n" students and write it in a file. Read the above mentioned information from the file and print the student information with the class they have secured. o If percentage >=75 , then print "Distinction" o If percentage >=60 and percentage <=74, then print "First Class" o If percentage >=50 and percentage <=59, then print "Second Class" o If percentage <50, then print "Fail"	**(14)**	**5**	**3**
	(OR)			
(b)	Explain sequential and random access in file handling with suitable example programs.	**(14)**	**5**	**3**

PART- C(1x 10=10Marks)

(Q.No.16 is compulsory)

		Marks	CO	RBT LEVEL
16.	Explain containers and iterators of Standard Template Library with example programs.	**(10)**	**5**	**5**

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