

H

Roll No.

TBC-202/TBI-203

B. C. A./B. Sc. (IT)
(SECOND SEMESTER)
END SEMESTER EXAMINATION,
July/Aug., 2022
OBJECT ORIENTED PROGRAMMING
USING C++

Time : Three Hours

Maximum Marks : 100

Note : (i) All questions are compulsory.

(ii) Answer any *two* sub-questions among
(a), (b) and (c) in each main question.

(iii) Total marks in each main question are
twenty.

(iv) Each sub-question carries 10 marks.

1. (a) Describe major parts of a C++ program.

(CO1)

P. T. O.

- (b) Define classes in C++ ? Create a class with the following data members.

Name of the class : student

Data members : sname, sroll_number, scourse, year, and college_name

Member functions : put_details() and get_details() to set and display student details respectively ? (CO1)

- (c) Write a C++ program to calculate simple interest and compound interest. (CO1)

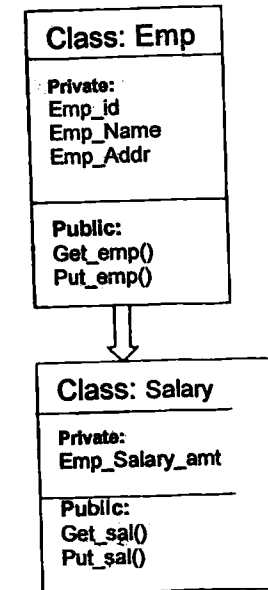
[Simple_Intrest=Principal*Rate*Time /100.

Compound_Intrest=Principal(1+rate)^{Time}-Principal]

2. (a) Define friend function. State how friend function is different from normal function, explain by using a suitable example.

(CO2)

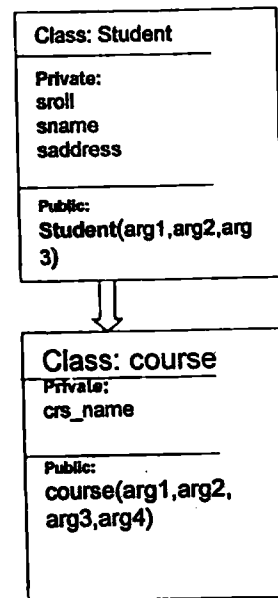
(b)



Write a C++ code to show the class hierarchy shown above. Also, write a code to accept emp_id, emp_name, emp_address and emp_salary and display them. (CO2)

- (c) Explain constructor and destructor in C++. State the use of copy constructor and explain when we need copy constructor by using a suitable example. (CO2)

3. (a) What is operator overloading ? Write a C++ program which shows the difference between function overloading and operator overloading. (CO3)
- (b) Define Inheritance in C++. Explain all types of inheritance supported in C++ by using suitable example. (CO3)
- (c)



Write a C++ code to perform below mentioned tasks (Use the above diagram) :

Design a class student contains three data members sroll, sname and saddress. Here, write a constructor in C++ which assigns the value to class data members through its arguments.

Also, design a class called course which consists of crs_name and constructor having four parameters. Write a C++ code to pass values to base class (student) constructor using derived (course) class constructor. (CO3)

4. (a) Illustrate the difference between the following : (CO4)
- (i) Virtual Function and Pure virtual Function.
 - (ii) Virtual Base Class and Abstract Class
- (b) Define Polymorphism and its classification in C++. Write C++ code which states the difference between runtime and compile time polymorphism. (CO4)

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- (c) What is template in C++ ? Write a C++ template for swapping two numbers.(CO4)
5. (a) Write a C++ code to copy the contents of student_reg.txt to student_admitted.txt.
(CO5)
- (b) Define Exception in C++. Write a C++ code which shows the difference between a basic error and an exception. (CO5)
- (c) Explain STL. Write a C++ code which shows the implementation of Vector and Lists in C++. (CO5)