DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE – RAIGAD - 402 103
Winter Semester Examination – December, 2019

Branch: B. Tech in Information Technology | **Sem.:- III**
Subject with Subject Code: - Object Oriented Paradigm with C++ (BTITC303) | **Marks: 60**
Date:-14/12/2019 | **Time:- 3 Hrs.**

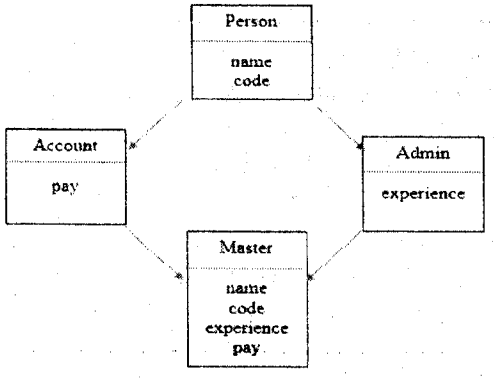
SY

Instructions to the Students

1. Each question carries 12 marks.
2. Attempt **any five** questions of the following.
3. Illustrate your answers with neat sketches, diagram etc. wherever necessary.
4. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly.

Q.1. A)	i. Briefly explain the steps involved in object oriented design. ii. Explain the need of flowchart? Which are the basic symbols used for drawing a flowchart? Illustrate your answer with an example.	06
B)	i. What do you mean by dynamic initialization of a variable? Give suitable example. ii. Write a program to read an array of size n demonstrating the use of new and delete operators for dynamic allocation and deallocation of memory.	06
Q.2. A)	Illustrate how friend function can be invoked in main (). Explain the mechanism by which it can access the class members in which it has been declared with suitable example.	06
B)	i. What is constructor? Explain the concept of parameterized constructor with suitable example. ii. Describe the importance of destructor. Explain its use with the help of an example.	06
Q.3. A)	A book shop maintains the inventory of books that are being sold at the shop. The list includes details such as author, title, price, publisher and stock position. Whenever a customer wants a book, the sales person inputs the title and author and the system searches the list and displays it is available or not. If it is not, an appropriate message is displayed. If it is, then the system displays the book details and requests for the number of copies required. If the requested copies are available, the total cost of the requested copies is displayed; otherwise the message "required copies not in stock" is displayed. Design a system using a class called Books with suitable member functions and constructors.	06
B)	i. What is object oriented programming? How it is different from procedure oriented programming? ii. Explain the necessity of class diagram and its components in object oriented programming with suitable example.	06
Q.4. A)	The class master derives information from both account and admin	06

classes which in turn derive information from the class person. Define all the four classes and write a program to create, update and display the information contained in master objects using concept of virtual base class.



B) i. The class result inherits properties from test class with data members marks1, marks2 and marks3 and sports class with data member score. A test class in turn inherits the properties of student class with data member rollno. Write a program to create an object in main class and invoke all necessary methods, implementing the concept of hybrid inheritance. 06

ii. We know that a private member of a base class is not inheritable. Is there any way possible for the objects of the derived class to access the private members of base class? If yes, how?

Q.5. A) How are operators overloaded? Define a class to represent a complex number having real part and imaginary part as data members. Write a program to add two complex numbers using operator overloading (Overload '+' operator). 06

B) Two files named 'Source1' and 'Source2' contain sorted list of integers. Write a program that reads the contents of both the files and stores the merged list in sorted form in a new file named 'Target'. 06

Q.6. A) i. How is polymorphism achieved at 06

(a) compile time

(b) run time

ii. What is an exception? Can we throw class types as exceptions? Explain with the help of example.

B) i. Explain try-catch block with suitable example. 06

When do we use multiple catch handlers?

ii. Explain the following statements:

(a) throw (b) throw()

----------Paper End----------