

JK LAKSHMIPAT UNIVERSITY, JAIPUR

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination (Regular/Backlog), November-December 2015

B. Tech. in Computer Science & Engg./Electronics and Comm. Engg./Chemical Engg.,
Semester III

Roll No.....

CSE302: Object Oriented Programming

Time: 3 hours

Max. Marks: 100

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.

Q.1A Attempt all questions (10 questions @ 1 mark) 10

- i. In C++, What is private inheritance used for
 - (a) With private inheritance, only the protected members of the base class become private members of the derived class
 - (b) With private inheritance, both public and protected members of the base class become private members of the derived class
 - (c) With private inheritance, both public and protected members of the base class become public members of the derived class
 - (d) None of them.
- ii. Which term denotes the process of wrapping up data and associated functions into single unit?
 - (a) Abstraction (b) Encapsulation (c) Data-hiding (d) Polymorphism
- iii. A constructor having a reference to an instance of its own class as an argument is known as
 - (a) parameterized constructor (b) default constructor (c) copy constructor (d) none of these
- iv. What is the output of this program?

```
class TypeChecking {  
    public static void main(String args[])  
    {  
        int num = 10.5;  
        System.out.println("Output :The value of num is" +num);  
    }  
}
```

- (a) Output: The value of num is 10.5 (b) Run-time error (c) Compilation error (d) None of the mentioned

- v.

```
#include<iostream.h>  
class easy  
{  
private: int i;
```

```

public: easy (int num)
{
    i=num;
}
void operator ++(int)
{
    cout<< "first";
}
void operator ++(void)
{ cout<< "second";
};
void main ()
{ easy obj (5);
  obj++;
}

```

(a) 6 (b) 5 (c) first (d) second.

- vi. A virtual base class is used when:
- (a) different functions in a base and derived class have the same name
 - (b) the base class has a virtual function that needs to be overridden in the derived class
 - (c) the identification of a function in a base class is ambiguous due to multiple inheritance.
 - (d) a base class is used with no body.
- vii. Which of the following is called as 'Compilation unit'?
- (a) Object file (b) Byte code (c) Source file (d) All of the mentioned
- viii. Which of the following statements is correct?
- (a) Base class pointer cannot point to derived class
 - (b) Derived class pointer cannot point to base class
 - (c) Pointer to derived class cannot be created
 - (d) None
- ix. Static member variable is initialized to..... when the first object of its class is created.
- (a) 0 (b) 1 (c) garbage (d) -1.
- x. PASCAL, BASIC and C are language, while C++ is an language.

Q.2 Short answer type questions (4 questions @ 2.5 marks)

10

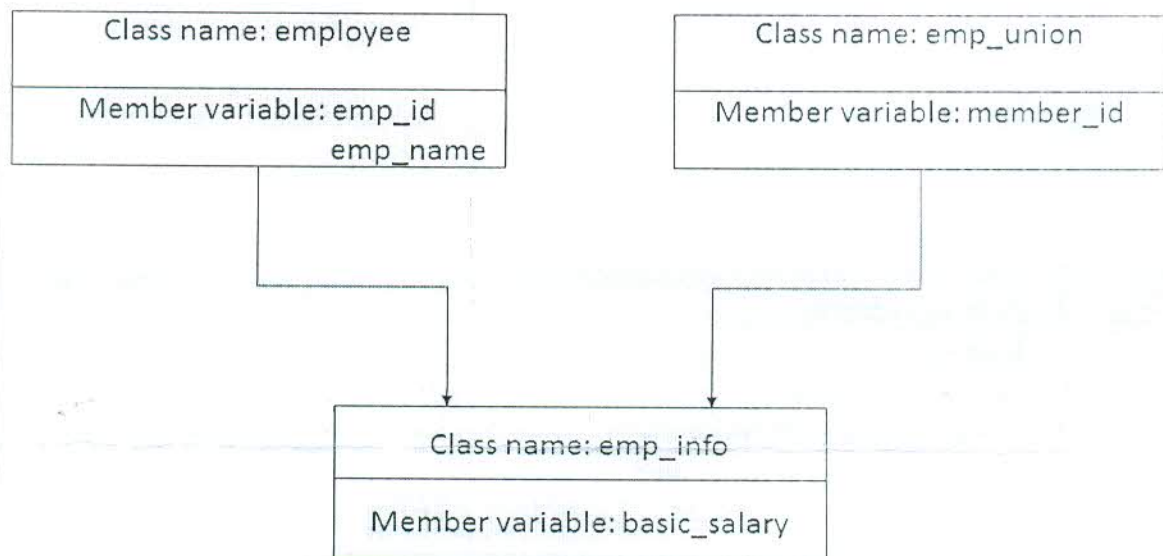
- i. What is OOP? Discuss it in contrast with other programming techniques.
- ii. Name the operators that can not be overloaded in C++.
- iii. What are the differences between Structure and Class.?
- iv. Describe the structure of a typical Java Program. Explain the task of the main method in a Java program.

Q.3A When will you make a function inline? Why? Write a program to demonstrate the concept of inline function.

05

- Q.3B When do we need to use default arguments in a function? Write a program to find simple interest where rate is default argument in function. 05
- Q.4A Write a program using a try block to detect and throw an exception if the conditions "divide-by-zero" occurs. 05
- Q.4B Write a program to calculate the cube of an integer, float and double number using function overloading. (passing single arguments to functions) 05

- Q.5A Write a program to illustrate the copy constructor for the object of class. Class account containing customer_name, acct_number, and balance as data members. 05
- Q.5B Write a program to implement the inheritance as shown in figure. Assume suitable member function to accept and display data. 05



- Q.6A What is operator overloading? How many arguments are required to overload unary and binary operators, respectively? 05
- Q.6B What is meant by dynamic or late binding? How is it implemented in C++? Distinguish between early binding and late binding? 05
- OR
- Q.6B What does polymorphism mean in C++ language? How is polymorphism achieved at (a) compile time and (b) run time? 05
- Q.7A Consider an example of a Banking System. Design a class called Bank that has data members such as those representing account number, name, A/C type, branch, Balance Amount, etc. Derive a 'Deposit' class from Bank for depositing the amount into that account and to maintain the balance. Also, derive a 'Withdrawal' class from Bank for withdrawing the amount from, that account and to maintain the balance. Now, derive a 'statement' class from 10

both Deposit and Withdrawal to print the complete bank statement of the specific, account holder with all transactions. Write an interactive program for N Customers using appropriate inheritance mechanism.

OR

Q.7A Explain the different methods of passing object parameters. WAP for passing objects as arguments. 10

- (i) WAP to distance manipulation in feet and inches (Passing objects by value).
- (ii) WAP to passing objects by reference as parameter to function. (Passing objects by reference)

Q.8A Define the basic concepts of object oriented programming: 10

- a. Object 1
- b. Class 1
- c. Data abstraction and encapsulation 2
- d. Polymorphism 1
- e. Inheritance with its types 2
- f. Message Passing 1
- g. Static Data Members and Static Member functions 2

Q.9A Write a C++ program to add two complex objects (complex number contains real and imaginary parts) by overloading + operator with and without using friend functions. 10

Q.9B What is a constructor? What are the characteristics of a constructor? 10
Write a program to simulate saving account processing in a bank using constructors also use destructor at the end of the program.

OR

Q.9B Write a program to calculate biggest of three numbers entered through constructor and then use destructor at end of program. 10
Whether constructors could be overload? Justify your answer through an example.