



# 17432

11819

**3 Hours / 100 Marks**

Seat No.

--	--	--	--	--	--	--	--

- 
- Instructions :**
- (1) *All questions are **compulsory**.*
  - (2) *Illustrate your answers with **neat sketches wherever necessary**.*
  - (3) *Figures to the **right** indicate **full marks**.*
  - (4) *Assume suitable data, if **necessary**.*
  - (5) *Use of Non-programmable Electronic Pocket Calculator is **permissible**.*
  - (6) *Mobile Phone, Pager and any other Electronic Communication devices are **not permissible** in Examination Hall.*

**Marks**

1. A) Attempt **any six** of the following :

**12**

- a) Write structure of C++ program.
- b) Define pointer variable. Give its syntax.
- c) State any two access specifier with example.
- d) Define constructor. State any two types of constructor.
- e) Define polymorphism. List types of polymorphism.
- f) Write any two advantages of inheritance.
- g) Explain the concept of this pointer.
- h) Modify the given code to make its constructor with default argument

```
class add
{
private ;
int a ;
Public : add (int x)
{
a = x ;
}
};
```

B) Attempt **any two** of the following :

**8**

- a) Explain the concept of overloaded constructor in a class with suitable example.
- b) List different types of inheritance with suitable diagram.
- c) Differentiate between constructor and destructor (any four points).

**P.T.O.**



2. Attempt **any four** of the following :

16

- Describe memory allocation for object with diagram.
- Explain virtual function with suitable example.
- Explain different visibility modes and its effect in inheritance.
- List any six characteristics of OOP. Also list any two OOP languages.
- Demonstrate the concept of friend function with example.
- Implement a program to declare a class city with data members city name and state. Accept and display data for 1 object using pointer to object.

3. Attempt **any four** of the following :

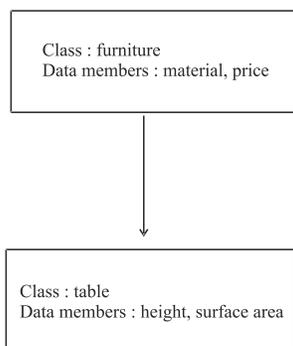
16

- Explain memory management operator with example.
- Explain the concept of constructor with default arguments with example.
- Explain constructor in derived class using one example.
- Use the concept of operator overloading to overload unary ‘-’ operator to negate value of variables.
- Explain pointer to derived class with example.
- Differentiate between function definition inside and outside the class (any four points).

4. Attempt **any four** of the following :

16

- Implement single inheritance for following figure. Accept and display data for 1 table.



- Describe constructor with syntax and example.
- Explain insertion and extraction operators in C++ with example.
- List characteristics of static data member and static member function.
- Explain hybrid inheritance with example.
- Write a program to search a number from an array using pointer to array.



5. Attempt **any four** of the following :

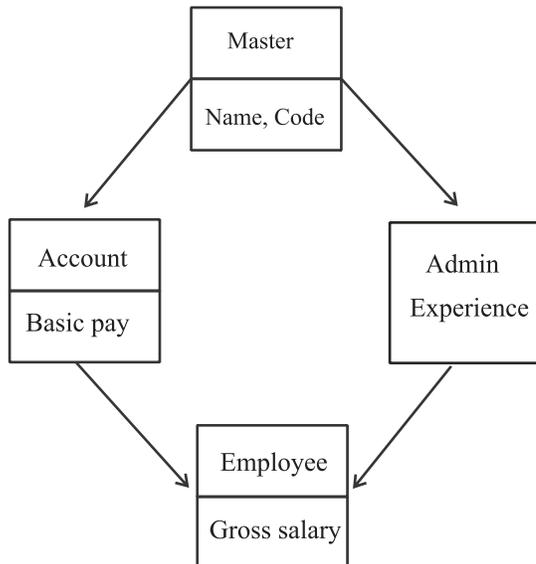
16

- a) Write any four rules for operator overloading.
- b) Explain structure with syntax and example.
- c) Compare run-time and compile-time polymorphism.
- d) Explain any four concept of OOP.
- e) Describe pointer arithmetic with example.
- f) Write a program to calculate area of circle and area of rectangle using function overloading.

6. Attempt **any two** of the following :

16

- a) Write a program to declare a class 'staff' having data members as name and department. Accept this data for 10 staffs and display names of staff that are in 'CO' department.
- b) Write a program to implement the concept of virtual base class for following figure. Accept and display information of one employee with his name, code, basic pay, experience and gross salary with the object of employee class.



- c) Write a program to find length of a string using pointer to string.

\_\_\_\_\_