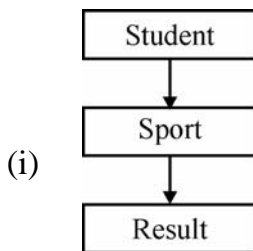# 17432

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.
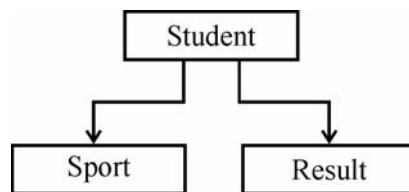
(4) Assume suitable data, if necessary.

Marks

1.   (A) **Attempt any SIX of the following :**   **12**

(a)   State any four application of object oriented programming.

(b)   Define constructor. State any two type of constructor.

(c)   State any two access specifier with example.

(d)   Define constructor overloading.

(e)   Give the types of inheritance for following diagram :

(f)   What is pointer ? Give any example.

(g)   Write a syntax to create a pointer for object.

(h)   State any two types of polymorphism.

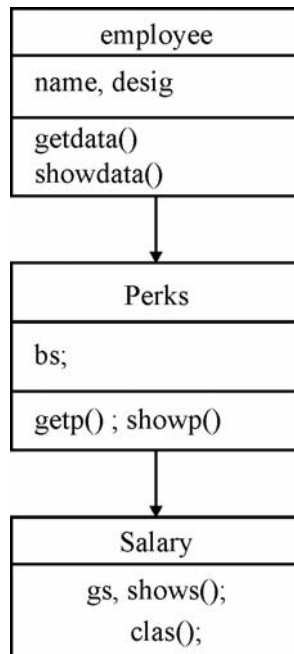(B) **Attempt any TWO of the following :**   **08**

(a)   Explain any two visibility modes with example.

(b)   Explain any two types of constructor with syntax and example.

(c)   Explain the concept of destructor in a class with example.

P.T.O.

2. Attempt any FOUR of the following : 16

(a) Differentiate between OOP and POP.

(b) Write a program to create a class "student" having data member as name, roll no. and percentage to read and display details for 10 students.

(c) Explain :

(i) Static member function (ii) Friend function

(d) Write a program to search the given element in the entered array using pointer.

(e) Differentiate between compile time & run time polymorphism.

(f) Write a program to show use of multilevel inheritance for following diagram to calculate the gross salary. $gs = bs + 0.5 * bs + 0.6 * bs$;

```
┌─────────────────┐
│    employee     │
├─────────────────┤
│ name, desig     │
├─────────────────┤
│ getdata()       │
│ showdata()      │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│      Perks      │
├─────────────────┤
│ bs;             │
├─────────────────┤
│ getp() ; showp()│
└─────────────────┘
         │
         ▼
┌─────────────────┐
│     Salary      │
├─────────────────┤
│ gs, shows();    │
│    clas();      │
└─────────────────┘
```

3. Attempt any FOUR of the following : 16

(a) Explain structure of C++ program with example.

(b) Explain syntax for declaring the function inside the class and outside the class with example.

(c) Explain the concept of parameterized constructor with example.

(d) Write a program to show use of single inheritance.

(e) Write a program to find the length of string using pointer.

(f) Explain any four rules for virtual function.

4. Attempt any FOUR of the following : **16**

(a) Write a program to evaluate the largest element in entered array using pointer.

(b) Explain hybrid inheritance with example.

(c) Explain copy constructor with example.

(d) Differentiate between multiple inheritance and multilevel inheritance.

(e) Write a program to show use of passing object as a parameter to function showdata () for a class "student" having data member as name and roll no. & member function as getdata ().

(f) Explain :

(i) Scope resolution operator (ii) Memory management operator

5. Attempt any FOUR of the following : **16**

(a) State any four features of object oriented programming.

(b) Explain memory allocation for object with example.

(c) Explain various pointer arithmetic operations with examples.

(d) Explain various rules for overloading operators.

(e) Write a program to show use of virtual function.

(f) Define polymorphism. Explain any two types with example.

6. Attempt any TWO of the following : **16**

(a) Explain various types of inheritance with example.

(b) Write a program to create a class "employee" with data member as name, designation and basic salary & gross salary. Create member functions as getdata () to read and showdata () to display details. Create sum () as friend function to calculate gross salary.

gs = bs + 0.5 * bs + 9.0 * bs ;

(c) Create a class "Account" with data member as acct.no. and balance. Create member function as getdata () and showdata (). Write a program to create a pointer for getdata () and showdata () function and access them using object of class "Account".

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