22316

21819

3 Hours / 70 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) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following: **10**

a) State the use of cin and cout.

b) Describe derived class with example.

c) State use of scope resolution operator.

d) Define class and object.

e) Write the use of ios : : in and ios : : out.

f) Describe use of static data member.

g) Give meaning of following statements:

```
int * ptr, a = 5;
ptr = & a;
cout << * ptr ;
cout << (* ptr) + 1;
```

Marks

2. Attempt any THREE of the following: **12**

a) Write a 'C++' program to find factorial of given number using loop.

b) Write a C++ program to declare a class COLLEGE with members as college code. Derive a new class as STUDENT with members as studid. Accept and display details of student along with college for one object of student.

c) Write a C++ program to find smallest number from two numbers using friend function. (Hint : use two classes).

d) Differentiate between run time and compile time polymorphism.

3. Attempt any THREE of the following: **12**

a) Write a C++ program to create a class STUDENT
The data members of STUDENT class.

Roll_No

Name

Marks

b) Accept data for five students and display it. Write a C++ program to displya sum of array elements of array size n•

c) Describe with examples, passing parameters to base class constructor and derived class constructor by creating object of derived class.

d) Describe how memory is allocated to objects of class with suitable diagram.

Marks

4. Attempt any THREE of the following: **12**

a) Write a program to implement multiple inheritance as shown in following Figure No. 1:

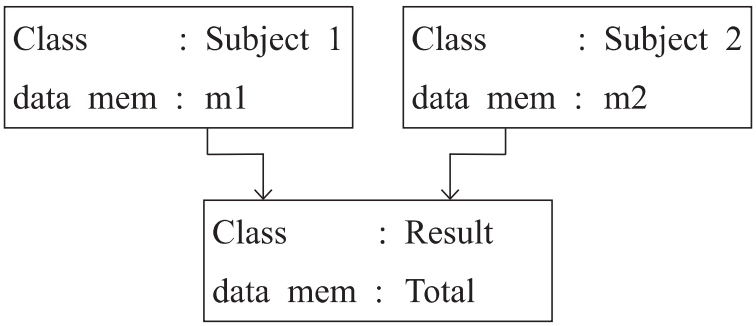

Fig. No. 1

Accept and display data for one object of class result.

b) Describe following terms: Inheritance, data abstraction, data encapsulation, dynamic binding.

c) State and describe visibility modes and its effects used in inheritance.

d) Write a C++ program to count number of spaces in text file.

e) Differentiate between contractor and destructor.

5. Attempt any TWO of the following: **12**

a) (i) Write any three rules of operator overloading.

(ii) Write a program in C++ to overload unary '_' operator to negate values of data members of class.

b) Write a C++ program to append data from abc·txt to xyz·txt file.

c) Write a C++ program to declare a class student with members as roll no, name and department. Declare a parameterised constructor with default value for department as 'CO' to initialize members of object. Initialize and display data for two students.

Marks

6. Attempt any TWO of the following: **12**

a) (i) Describe structure of C++ program with diagram.

(ii) Write a C++ program to add two 3×3 matrices and display addition.

b) Write a program to swap two integers using call by reference method.

c) Write a C++ program to implement following in heritance. Refer Figure No. 2.

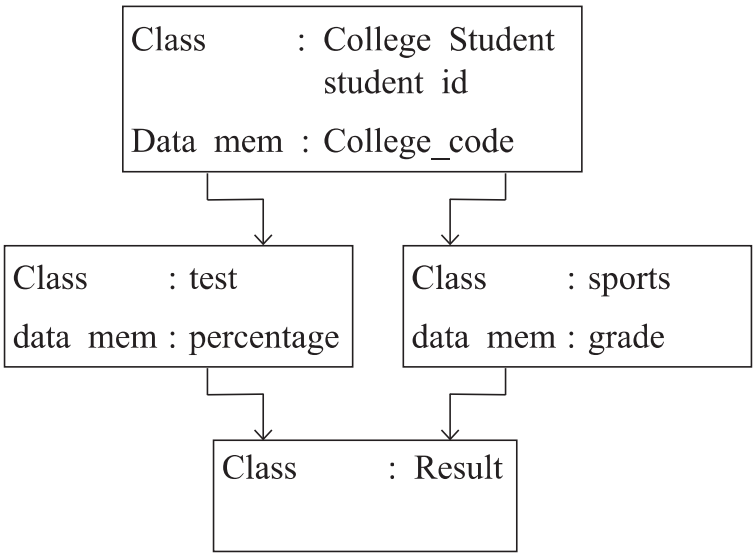

Fig. No. 2

Accept and display data for one object of class result (Hint : use virtual base class).