

Full Marks : 70

Time : 3 hours

Answer Q. No. 1, which is compulsory and any five of the rest questions

The figures in the right-hand margin indicate marks

1. Answer the following : 2 × 10

(a) The ability of a function to act in different ways on different data types is called _____.

(b) What will be the output of the following codes :

X = 6;

cout << x << x++ << ++x;

(c) Find errors, if any, in the given function prototypes void display (float mark[], size = 20);

(2)

(d) When do we declare a member of a class static ?

(e) How is dynamic initialization of objects achieved ?

(f) What is the output of the following program. Explain your answer.

```
#include <iostream.h>
class some{
public :
~ some()
{
cout << "some's destructor" << endl;
}
};
void main()
{
some s;
s.~some();
}
```

(g) An _____ class is one that is not used to create objects.

- (h) Virtual functions are used to create pointer to base class.
- (i) _____ can be used without using its constructor.
- (j) What are the different blocks used in exception handling ?
2. (a) Write a program to find out the 2nd largest and 2nd smallest number in an array of n numbers. *ans* 5
- (b) Create a class called Volume that uses three data members of type distance to model the volume of a room and initialize a variable of type Volume to specific dimensions, then calculate the volume it represents and print out the result. To calculate the volume, convert each dimension from a distance variable to a variable of type float representing feet and fractions of a foot, and then multiply the resulting three numbers. 5

3. (a) Explain the difference between an instance class and an abstract class. 5
- (b) Discuss the basic use of virtual class. 5
4. (a) Write a program to find out simple interest using multiple constructors. 5
- (b) Discuss the different types of inheritance. 5
5. (a) Write a program using operator overloading to find out the summation of complex numbers. 5
- (b) Define prototypes and linkages. 5
6. (a) Write a program to read two double type numbers from keyboard and a function to calculate the division of these two numbers. A try block to throw an exception when a wrong type of data is entered and another try block to throw an exception if the condition "division occurs". Appropriate catch block to handle the exceptions thrown. 5

- (b) When do we use multiple catch handlers ?
What will happen several handlers match
the type of exception thrown ? 5
7. (a) Distinguish between overloaded functions
and function templates. 5
- (b) What is generic programming ? How is it
implemented in C++ ? 5
8. (a) What is meant by software development
method ? Explain in details. 5
- (b) What do you mean by analysis and design ?
What are the steps involved in designing ? 5