Roll No. .....

Subject Code—656-X

M. Sc. EXAMINATION

(Third/Fourth Semester)

(Re-appear)

COMPUTER SCIENCE

MS-17

Object Oriented Programming Using C++

Time : 3 *Hours* *Maximum Marks :* 100

Note : Attempt any *Five* questions. All questions carry equal marks.

1. Explain the basic paradigms of OOP. How is it different from structured languages ? **20**

2. (a) Write a class that takes an integer as an input and returns on integer that has digits in reverse order as that of the input number.

(b) Create a class 'star-design'. The class defines the height of the pattern and type of pattern as integers. The parameter type = 1 prints a triangle and type = 2 prints a square. Height defines the number of rows of stars in the triangle or square. Without passing any parameters it must print a square using five stars vertically and horizontally. For a height = 4, your program must print : **10+10**

type = 2

```
* * * *
* * * *
* * * *
* * * *
```

type = 1

```
    *
  * * *
* * * * *
* * * * * * *
```

3. (a) Declare a class to implement queue using an array. Write all the possible constructors for the class.

   (b) Extend the above class to implement the insert the delete operations for a queue. **8+12**

4. (a) Write a program in C++ to overload – operator for distance objects. The distance is taken in kilometers and meters.

   (b) What is multiple inheritance ? Explain with the help of an example. State the problem with multiple inheritance and its solution. **12+8**

5. (a) Write a program in C++ to copy a text file to another file such that each character in the initial file is replaced by the successor character in alphabetic order. For example if the initial file contains : program then the copied file must contain : qsphsbn.

   (b) What are functions available for random access to files in C++ ? **12+8**

6. (a) Explain how do private, protected and public data get inherited in public and private mode ?

   (b) Write a program in C++ to implement multi-level inheritance. **10+10**

7. Explain static and dynamic polymorphism. Give suitable examples. **20**

8. Write notes on the following :

   (a) Friend functions, their use and their disadvantage

   (b) Comparison of parameter passing in C and C++. **10+10**