

2022  
B.A./B.Sc. (General) Third Semester  
Introduction to Computer Science  
(Additional Option)  
Paper – A: Programming in C++

Time allowed: 3 Hours

Max. Marks: 25

**NOTE:** Attempt five questions in all, including Question No. IX Unit-V) which is compulsory and selecting one question each from Unit I - IV.

x-x-x

**UNIT - I**

- I. What is object oriented paradigm? Explain the various features of OO paradigm. Distinguish between the following terms:
  - a) Objects and Classes
  - b) Data abstraction and Data encapsulation. (5)
- II.
  - a) What is a stream class? How can you perform formatted input/ output with stream class objects?
  - b) Define and differentiate between Private and Public member function of a class examples. (3,2)

**UNIT - II**

- III.
  - a) What is meant by object initialization? What is its need? Explain with the help of suitable examples.
  - b) What is scope resolution operator? Explain its use with the help of a C++ program. (2,3)
- IV. What is the difference between "call by reference" and "call by value"? What are the benefits of using call by reference in function parameter passing? Explain with an example. (5)

**UNIT - III**

- V. What do you mean by constructor and destructor in C++? Explain the necessity of copy constructor with an example. Also explain the order of invocation of constructor and destructor with an example. (5)

P.T.O.

(2)

- VI. Define operator overloading. What are the rules of operator overloading? How do you overload unary operator? Explain with an example. (5)

UNIT - IV

- VII. Write a C++ program for the creation, insertion and deletion of elements from a Single Linked List. (5)
- VIII. What is a 'stack' data structure? Explain. State the steps to implement push and pop operations of a stack in C++. (5)

UNIT - V

- IX. Attempt the following:-
- a) Explain why inheritance is important in object-oriented programming.
  - b) What is the difference between function overloading and function overriding?
  - c) How pointers are used in C++? Explain.
  - d) What is the need for virtual functions in C++?
  - e) Give applications of Queue data structure. (5x1)

x-x-x