



B.Sc. Part-II (Semester-III) Examination

COMPUTER SCIENCE/COMPUTER APPL./INFORMATION TECHNOLOGY (NEW)

(Data Structure & C++)

Time : Three Hours]

[Maximum Marks : 80

**Note :—** (1) **ALL** questions are compulsory.

(2) Assume suitable data wherever necessary.

(3) Question No. 1 carries 8 marks and all other questions carry 12 marks each.

1. (A) Fill in the blanks :

2

(i) Array is an example of \_\_\_\_\_ data structure.

(ii) A function can return a value to the calling function using the \_\_\_\_\_ statement.

(iii) \_\_\_\_\_ are the basic run-time entities in an object-oriented system.

(iv) In \_\_\_\_\_ search method, element must be in sorted order.

(B) Choose the correct alternative from the following :

2

(i) The root element is processed at the last, so the name is given \_\_\_\_\_ traversing.

(a) Inorder

(b) Preorder

(c) Postorder

(d) None

(ii) Queue is also called as \_\_\_\_\_.

(a) LIFO

(b) FIFO

(c) FILO

(d) LILO

(iii) Which of the following operator is overloaded for object cout ?

(a) >>

(b) <<

(c) +

(d) =

(iv) Which of the following is not a form of inheritance ?

(a) Multilevel

(b) Hierarchical

(c) Hybrid

(d) Base class

(C) Answer in **ONE** sentence each :

4

(i) What is pure virtual function ?

(ii) What is merging ?

(iii) What is sibling ?

(iv) What do you mean by sorting ?

2. (A) What is stack ? Explain representation of stack in memory.

6

(B) Explain primitive and non-primitive data structure with suitable example.

6

OR

3. (A) What is linear array ? Write an algorithm for traversing a linear array.

6

(B) What is data structure ? Explain various operations performed on it.

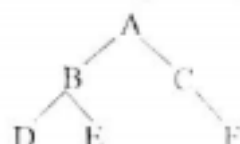
6



4. (A) What is linked list ? Explain the representation of linked list in memory. 6  
(B) What is Queue ? Write an algorithm to insert an element into a queue. 6

OR

5. (A) What is priority queue ? How priority queue is represented in one way list ? 6  
(B) Explain : 6  
(i) circular linked list  
(ii) doubly linked list.
6. (A) Explain selection sort with a suitable example. 6  
(B) What is meant by traversing a binary tree ? Write preorder, inorder, postorder traversing of the following binary tree 6



OR

7. (A) What is searching ? Explain the linear search technique with suitable example. 6  
(B) Explain Bubble Sort method with suitable example. 6
8. (A) What are the advantages and application of OOPS ? (Object Oriented Programming) 6  
(B) Explain the following operators with examples of each : 6  
(i) cin  
(ii) endl  
(iii) new

OR

9. (A) Explain the program structure of C++ in detail with examples. 6  
(B) How to define and declare class ? Explain with suitable example. 6
10. (A) What is default argument ? How to use default argument in C++ ? Explain with suitable example. 6  
(B) What is constructor ? Explain parameterized constructor with example. 6

OR

11. (A) What is friend function ? What are the special characteristics of friend function ? 6  
(B) Explain pointer to object with suitable example. 6
12. (A) What is inheritance ? Explain multiple inheritance with suitable example. 6  
(B) What is operator overloading ? How to define operator overloading ? Explain it. 6

OR

13. (A) Write a program to overload unary (-) operator. 8  
(B) What is virtual base classes ? Explain. 4