

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.

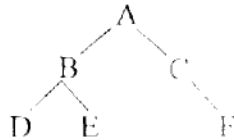
(3) Question No. 1 carries 8 marks and all other questions carry 12 marks each.

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