

BCA-12
June - Examination 2019
BCA Pt. II Examination
Data Structure and Algorithm
Paper - BCA-12

Time : 3 Hours]

[Max. Marks :- 70

Note: The question paper is divided into three sections A, B and C. Write answers as per given instructions.

Section - A

7 × 2 = 14

(Very Short Answer Questions)

Note: Answer **all** questions. As per the nature of the question delimit your answer in one word, one sentence or maximum up to 30 words. Each question carries two marks.

- 1) (i) What is data?
- (ii) List any four applications of stack.
- (iii) What do you mean by FIFO structure?
- (iv) What is the binary tree? Give an example.
- (v) What do you mean by recursive function? Give an example.
- (vi) Sequential search has _____ complexity in worst case and _____ complexity in best case.
- (vii) What is the complete undirected graph? Give an example.

Section - B**4 × 7 = 28**

(Short Answer Questions)

Note: Answer **any four** questions. Each Answer should not exceed 200 words. Each question carries seven marks.

- 2) Explain the implementation of the stack using an array with suitable example.
- 3) Write a short note on the Priority Queue.
- 4) What is the difference between a skewed binary tree and binary search tree? Explain with suitable example
- 5) Write an algorithm to traverse a graph in DFS.
- 6) How recursive function is used to solve the Tower of Hanoi problem? Explain with an example.
- 7) Discuss the basic steps in solving any problem using branch and bound.
- 8) Write an algorithm for Binary search also explain with suitable example.
- 9) Distinguish between static memory allocation and dynamic memory allocation.

Section - C**2 × 14 = 28**

(Long Answer Questions)

Note: Answer **any two** questions. You have to delimit your each answer maximum upto 500 words. Each question carries fourteen marks.

- 10) What is an Array? Explain different types of the array with the advantages and disadvantages with suitable example.
 - 11) Give the definition of a graph? How you can represent the graph using adjacency Matrix and adjacency list? Explain with an example.
 - 12) Write an algorithm to find the maximum element in an array. Also, find its complexity.
 - 13) Write a short note on
 - (a) circular linked list
 - (b) doubly linked list
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