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Reg. No. : .....

Name : .....

Second Semester B.C.A. Degree Examination, December 2021

Career Related First Degree Programme Under CBCSS

Group 2(b) – Computer Applications

Core Course

CP 1243 : DATA STRUCTURES

(2018 and 2019 Admission)

Time : 3 Hours Max. Marks : 80

SECTION – A (Very Short Answer Type)

(**One** word to maximum of **one** sentences. Answer **all** questions)

1. Name any two linear data structures.
2. Name the operations on stack.
3. What is an array?
4. What is queue?
5. Give the syntax for declaring a two-dimensional array.
6. Name the different tree traversals.
7. What do you mean by a pointer?
8. What is a circular singly linked list?
9. What is a tree?
10. Name a LIFO and FIFO data structure.

(10 × 1 = 10 Marks)

P.T.O.

SECTION – B (Short Answer)

Not to exceed **one** paragraph, answer any **eight** questions. **Each** question carries **2** marks.

11. What do you mean by linear search?

12. What is a hash table?

13. What is depth first search?

14. What do you mean by prefix notation?

15. What is bubble sort?

16. What is doubly linked list?

17. What is a binary search tree?

18. What are the operations that can be implemented in a linked list?

19. Write the prefix and postfix notation of (A + B)*(C – D).

20. What do you mean by traversing a linked list?

21. What is a graph?

22. What is an expression tree?

(8 × 2 = 16 Marks)

SECTION – C (Short Essay)

Not to exceed **120** words, answer any **six** questions. **Each** question carries **4** marks.

23. Explain selection sort with illustration.

24. Explain binary search algorithm.

25. Explain the components of a graph data structure.

26. Write a note on hash functions with examples.

27. What are the advantages of a linked list over an array?

28. Explain the linked list implementation of inserting an element into stack.

29. Differentiate directed and undirected graphs.

30. Compare static and dynamic data structures.

31. Write an algorithm to perform search operation in a doubly linked list.

(6 × 4 = 24 Marks)

SECTION – D (Long Essay)

Answer any **two** questions. **Each** question carries **15** marks.

32. Explain the insertion and deletion operation in queues.

33. Explain the different binary tree traversals.

34. Explain the insertion and deletion operations on stack.

35. Explain the concept of insertion and deletion in a singly linked list with diagrams.

(2 × 15 = 30 Marks)