Q.P. Code – 68233

Second Semester B.C.A. Degree Examination, April/May 2019

(CBCS Scheme)

Computer Science

DATA STRUCTURES USING C

Time : 3 Hours] *[Max. Marks : 90*

Instructions to Candidates : Answers ALL the Sections.

SECTION – A

Answer any **TEN** of the following. **(10 × 1 = 10)**

1. Mention any two examples for non linear data structure.
2. What is pointer?
3. What is linked list?
4. Define recursion.
5. Write the mathematical representation of overflow in stack.
6. What is double ended queue?
7. Mention any two applications of queue.
8. What is NULL graph?
9. Pictorial representation of four vertices regular graph.
10. Define height of a binary tree.
11. What is strictly binary tree?
12. Define heap sort.

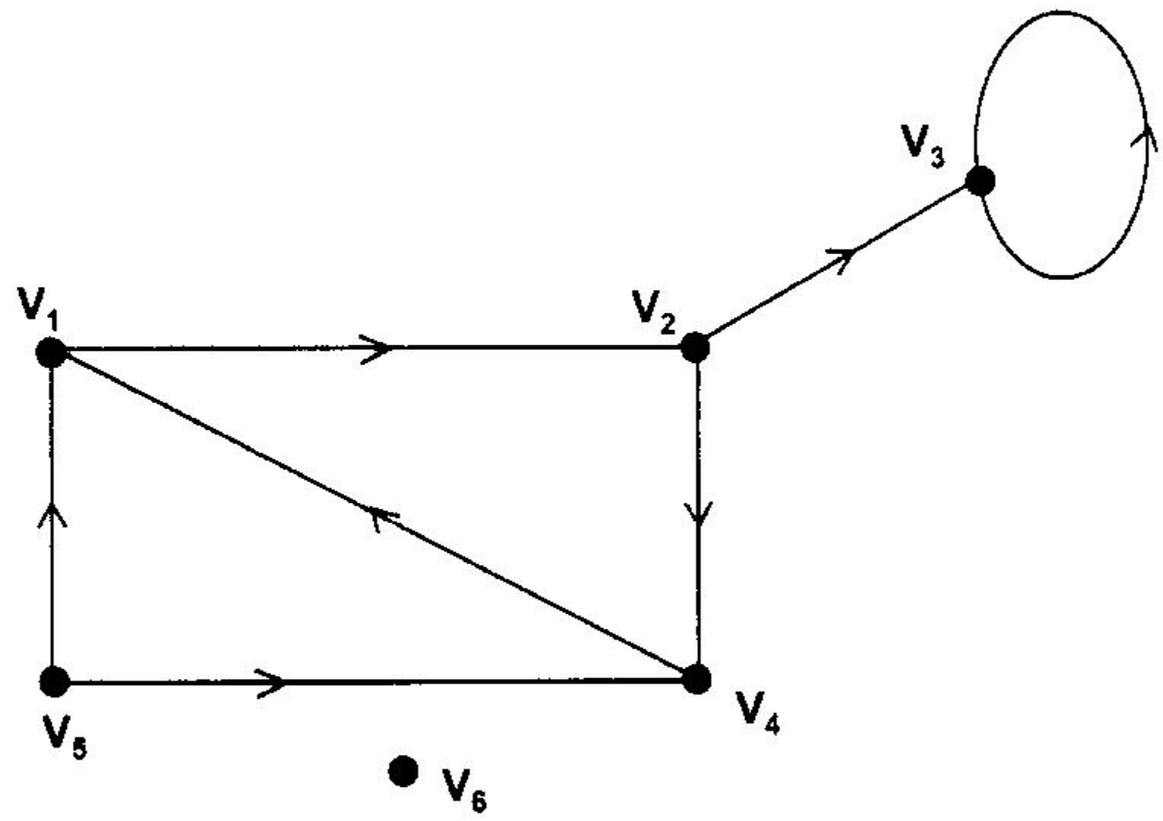
SECTION – B

Answer any **FIVE** of the following : **(5 × 3 = 15)**

13. Explain different operations on non-primitive data structure.
14. Write the difference between malloc ( ) and calloc ( ) functions.
15. Write an algorithm for PUSH operation.

16. Define prefix. Infix and postfix expression.

17. Write the degree of all vertices in the following graph :



18. Write a note on AVL tree.

19. Explain array representation of binary tree with an example.

SECTION – C

Answer any **SIX** of the following : **(6 × 5 = 30)**

20. Explain the classification of data structure.

21. Write a note on doubly linked list.

22. Write an algorithm to evaluate postfix expression.

23. Write a program to print N Fibonacci series using recursion.

24. Explain circular queue with an example.

25. Write the linked representation of graph with an example.

26. What is binary tree? Explain different tree traversal technique with an example.

27. Write the difference between linear search and binary search.

SECTION – D

Answer any **FIVE** of the following : **(5 × 7 = 35)**

28. Write a program to create, display and insert operations on singly linked list.

29. (a) Explain circular linked list.

    (b) Write the advantages and disadvantages of singly linked list. **(4 + 3)**

30. Write a program to implement stack using linked list.

31. Write a program to implement queue using array.

32. What is binary search tree? Construct BST with the following elements and show step by step procedure 50, 10, 25, 80, 65, 5, 70 30.

33. What is searching? Write an algorithm for binary search technique.

34. Write a program to sort the given N array elements using merge sort.

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