D.K.M. COLLEGE FOR WOMEN (AUTONOMOUS),VELLORE-1.

DEPARTMENT OF COMPUTER SCIENCE AND APPLICATIONS

DATA STRUCTURE

UNIT- I   SECTION-A   2 MARKS

1. Define Data Structure.
2. What is Linear data structure? Give an example.
3. Define Algorithm.
4. Define Array.
5. Define Ordered list.
6. Define Garbage collection.

SECTION-B   5 MARKS

1. Write about Primitive Data types.
2. Write about Composite Data types.
3. Explain the types of Data Structures.
4. Explain the types of Array with example.

SECTION-C   10 MARKS

1. Explain briefly about array operations.
2. What is Ordered List? Explain the various representation, advantages and disadvantages of Ordered List.

UNIT II   SECTION-A   2 MARKS

1. What is Stack?
2. What is Stack overflow?
3. What is Stack Underflow?
4. What are the disadvantages of Stack implementation?
5. Define Rear.
6. List the operations in Stack.
7. List the operations in Queue.
8. What is Queue?
9. What are the limitations of Linear Queue?

SECTION-B   5 MARKS

1. To evaluate postfix expression of A+B*C^D for A=2, B=-1, C=2, D=3 using algorithm Eval_Postfix.
2. Convert the given Infix expression ((A+B+C)^D)*(G+H) into postfix and prefix expression.
3. Write short notes on Circular Queue and its operations.

4. Evaluate the expression from infix to prefix: (a*b-f*h)^d
5. Write an algorithm to finding the factorial using recursion.
6. Write an algorithm for PUSH and POP operations.
7. Explain enqueue and dequeue operation in queue.

SECTION-C   10 MARKS

1. Explain Briefly about Stack Operations.
2. Explain about Evaluation of Expressions.
3. Explain about Queue Operations.
4. Write an algorithm to convert an expression from infix to postfix.
5. Explain various operations performed on circular queue.

UNIT III   SECTION-A   2 MARKS

1. Define Linked List.
2. Define the representation of Circularly Linked List.
3. What are the advantages of Linked List?
4. Define Singly Linked List.
5. Define Doubly Linked List.

SECTION-B   5 MARKS

1. What are the advantages and disadvantages of Circularly Linked List?
2. How to add a node to Singly Linked List? Explain.
3. What are the advantages and disadvantages of Doubly Linked List?
4. Write insertion and deletion operations of Doubly Linked List.
5. Write an algorithm for adding two polynomials using linked list.
6. Write short notes on applications of Linked List.

SECTION-C   10 MARKS

1. What are the operations of Singly Linked List? Explain.
2. What are the operations of Doubly Linked List? Explain.
3. Write an algorithm to add two polynomials. Give example.

UNIT IV   SECTION-A   2 MARKS

1. Define tree.
2. What are the types of Binary tree?
3. What is skewed binary tree?
4. Define Threaded Binary trees.
5. What is weighted Graph? Give example.
6. Define Graph.
7. Define BFS.
8. Define DFS.
9. Define In order traversal.

10. Define Pre order traversal.
11. Define Post order traversal.

SECTION-B   5 MARKS

1. Explain about the Representation of Binary trees.
2. Explain the types of Graphs.
3. Write an Algorithm using DFS traversal technique.
4. Explain the storage representation of graphs with example.
5. Write an algorithm for insertion and deletion operations on binary Search tree.
6. Explain BFS in detail.

SECTION-C   10 MARKS

1. Explain briefly about Binary Tree traversals.
2. Explain about Representation of Graphs.
3. Explain briefly about Graph Traversals.

UNIT V   SECTION-A   2 MARKS

1. Define Searching.
2. Write about Transpose Sequential Search.
3. Write down different searching methods.
4. Define Sorting.
5. What are the desirable characteristics of an algorithm?
6. Define Bubble Sort.
7. Define Quick Sort.
8. Define Merge Sort.

SECTION-B   5 MARKS

1. Explain about unordered Linear Search.
2. What is Binary Search tree? Develop an algorithm for same.
3. What is Quick Sort? Give examples.
4. Explain briefly about Bubble Sort with example.
5. Write short notes on Linear Search.

SECTION-C   10 MARKS

1. Explain about Binary Search in detail.
2. How will you sort an array using Bubble sort algorithm?
3. Explain the Merge Sort algorithm in detail.
4. Explain Quick Sort algorithm in detail with example.