

EC 8393- FUNDAMENTALS OF DATA STRUCTURES**QUESTION BANK****UNIT-I**

1. Define Compilation process.
2. What do you meant by linking?
3. Define Constants in C. Mention the types.
4. What are the different data types available in 'C'?
5. What is meant by Enumerated data type.
6. What are Keywords?
7. What do you mean by variables in 'C'?
8. Difference between Local and Global variable in C.
9. What are Operators? Mention their types in C.
10. What is the difference between '=' and '==' operator?
11. What is type casting?
12. What is the difference between ++a and a++?
13. Distinguish between while..do and do..while statement in C. (JAN 2009)
15. What do you meant by conditional or ternary operator?
16. What is the use of sizeof() operator in C.
17. Define Looping in C .
18. What are the types of looping statements available in C
19. What are the types of I/O statements available in 'C'?
20. Write short notes about main () function in 'C' program. (MAY 2009)
21. Define delimiters in 'C'.
Delimiters Use
22. Why header files are included in 'C' programming?
23. What is the output of the programs given below?
24. What is the difference between scanf() and gets() function?
25. What are the Escape Sequences present in 'C'?
26. What is the difference between if and while statement?
27. Differentiate between formatted and unformatted you input and output functions?
Formatted I/P functions: Unformatted I/O functions:

- 28.. What is an array?
29. What are the main elements of an array declaration?
30. How to initialize an array?
31. Why is it necessary to give the size of an array in an array declaration?
32. What is the difference between an array and pointer?
33. List the characteristics of Arrays.
34. What are the types of Arrays?
35. Define Strings.
36. Mention the various String Manipulation Functions in C.
37. What is the use of atoi() function?
38. What is the use of 'typedef'?

PART – B

1. Explain Structure of C Program
2. Explain Decision Making Statements with suitable examples
3. Explain Operators with suitable examples
4. Explain Looping Statements with suitable examples
5. Explain String Operations with suitable examples
6. Explain Various Input/output Statements in C
7. Explain Single and two dimensional Array with suitable examples
8. Explain Matrix operations

UNIT II

1. What are functions in C?
 2. How will define a function in C?
- Defining a Function:
3. What are the steps in writing a function in a program?
- a) Function Declaration (Prototype declaration):
4. What is the purpose of the function main()? (MAY 2009)
 5. Is it better to use a macro or a function?
 6. Distinguish between Call by value Call by reference.
 7. What is meant by Recursive function?
 8. Write a C program for factorial using recursion function.
 9. What is dynamic memory allocation?
 10. What are the various dynamic memory allocation functions?
 11. What is a Pointer? How a variable is declared to the pointer? (MAY 2009)
 12. What are the uses of Pointers?
 13. What is the output of the program?
 14. What are * and & operators means?
 15. What is dangling pointer?
 16. What is meant by Recursive function?
 17. Write a C program for factorial using recursion function.
 18. What is dynamic memory allocation?
 19. What are the various dynamic memory allocation functions?
 20. Compare arrays and structures.
 22. Define Structure in C.
 23. What you meant by structure definition?
 24. How to Declare a members in Structure?
 25. What is meant by Union in C.?
 26. How to define a union in C.
 27. How can you access the members of the Union?
 28. What are the pre-processor directives?
 29. What are storage classes?

30. What are the storage classes available in C?
 31. What is register storage in storage class?
 32. What is static storage class?
 33. Define Auto storage class in C.
 34. Define pre-processor in C.
 35. Define Macro in C.
 36. What are conditional Inclusions in Preprocessor Directive?
 37. What you meant by Source file Inclusion in Preprocessor directive?
- Source file inclusion (#include)

PART – B

1. Explain Call by value and call by reference with suitable examples
2. Explain Pointer operations with suitable examples.
3. Explain Recursion function with suitable program
4. Explain different Memory Allocation methods with suitable examples
5. Explain Storage classes with suitable examples
6. Briefly explain Preprocessor with suitable examples
7. Briefly explain storage classes.

UNIT III – LINEAR DATA STRUCTURES -LIST

1. Define Data Structures
2. Define Linked Lists
3. State the different types of linked lists
4. List the basic operations carried out in a linked list
5. List out the advantages of using a linked list
6. List out the disadvantages of using a linked list
7. List out the applications of a linked list
8. State the difference between arrays and linked lists
9. Define an Abstract Data Type (ADT)
10. What are the advantages of modularity?
11. What are the objectives of studying data structures?
12. What are the types of queues?
13. List the applications of stacks
14. List the applications of queues
15. Define a stack
16. List out the basic operations that can be performed on a stack
17. State the different ways of representing expressions
18. State the rules to be followed during infix to postfix conversions
19. Mention the advantages of representing stacks using linked lists than arrays
20. Mention the advantages of representing stacks using linked lists than arrays
21. Define a queue
22. Define a priority queue
23. State the difference between queues and linked lists
- 24.. Define a Dequeue
25. What is the need for Priority queue?

PART – B

1. Explain Singly Linked List with its all operations
2. Explain Doubly Linked List with its all operations
3. Explain Circularly Linked List with its all operations
4. Explain Polynomial with its all operations
5. Explain Array Linked list with neat diagram.
6. Briefly Explain Stack with all its Operations.
7. Briefly Explain Queue with all its Operations.
8. Briefly Explain Priority Queue with all its Operations.
9. Briefly Explain Dequeue with all its operations.
10. Distinguish between Stack and Queue,
11. Explain about application of Stacks
12. Explain about Applications Queues.

UNIT IV – NON LINEAR DATA STRUCTURES – TREES**PART - A**

1. Define a tree
2. Define root
3. Define degree of the node
4. Define leaves
5. Define internal nodes
6. Define parent node
7. Define depth and height of a node
8. Define depth and height of a tree
9. What do you mean by level of the tree?
10. Define forest
11. Define a binary tree
12. Define a path in a tree
13. Define a full binary tree
14. Define a complete binary tree
15. State the properties of a binary tree
16. What is meant by binary tree traversal?
17. What are the different binary tree traversal techniques?
18. What are the tasks performed during inorder traversal?
19. What are the tasks performed during postorder traversal?
20. State the merits of linear representation of binary trees.
21. State the demerit of linear representation of binary trees.
22. State the merit of linked representation of binary trees.
23. State the demerits of linked representation of binary trees.
24. Define a binary search tree
25. What is the use of threaded binary tree?
26. Traverse the given tree using Inorder, Preorder and Postorder traversals.
27. In the given binary tree, using array you can store the node 4 at which location?
28. Define AVL Tree.
29. What do you mean by balanced trees?

30. What are the categories of AVL rotations?
31. What do you mean by balance factor of a node in AVL tree?
32. Define splay tree.
33. What is the idea behind splaying?

PART - B

1. Briefly explain in order, postorder and pre order travels
2. Explain AVL tree with its different rotation
3. Explain Splay tree with its different rotation
4. Explain Binary search tree with neat diagram
5. Explain Binary tree with neat diagram.

UNIT V –, SORTING AND HASHING TECHNIQUES

PART - A

1. Define sorting
2. Mention the types of sorting
3. What do you mean by internal and external sorting?
4. Define bubble sort
5. How the insertion sort is done with the array?
6. What are the steps for selection sort?
7. What is meant by shell sort?
8. What are the steps in quick sort?
9. Define radix sort
10. What are the advantages of insertion sort
11. Define searching
12. Mention the types of searching
13. What is meant by linear search?

PART – B

1. Explain Quick sort with suitable example
2. Explain Shell sort with suitable example
3. Explain bubble sort with suitable example
4. Explain Merge sort with suitable example
5. Explain Breadth First Search with suitable example
6. Explain Depth First Search with suitable example