QUESTION BANK
ON
COURSE: 304: DATA STRUCTURES

PRELIMINARIES:

S.NO:	QUESTION	MARKS
1.	What is array of pointer, explain with appropriate example?	2
2.	Differentiate between call by value and call by reference, give example.	5
3.	Explain pointer to structure and pointer declared within the structure of type structure. What is difference between them?	5
4.	How we can create an instance of a structure? What is difference between declaring an instance of structure and declaring it using typedef?	3
5.	Explain Pointer to array and pointer to structure.	5
6.	How we can pass pointer to function.	5
7.	Explain Linear & non linear programming, give difference between them.	5
8.	What is recursion, discuss its advantages and disadvantages, give recursive function for first n Fibonacci number.	8
9.	Explain pointer. Give difference between dynamic and static memory allocation.	5
10.	Explain array of pointer and pointer to array.	5
11.	What is meaning of int **a	2
12.	What is use of typedef?	2
13.	Give difference between pointer to array and array of pointer.	2
14.	What is call by value? Can we pass array through this method? If yes, how?	3
15.	What is prototype of function?	2
16.	How array differ from pointer? Explain it with example.	5
17.	Give example of static memory allocation.	3
18.	Explain pointer to structure. Write a program to declare a structure with the fields roll No, name, marks1, marks2.Input and output this structure data using pointer.	8
19.	Define DS.	2
20.	Write short note on pointers.	5
21.	List out non primitive data structures.	3
22.	Name various primitive and non primitive DS.	3
23.	What is difference between int *a and int**a	3
24.	What is difference between *p+1 and *(p+1)	3
25.	Find the address of fourth element of an integer array A[10],if base address is 1050	2

QUEUE:

S.NO:	QUESTION	MARKS
1.	Explain concept of circular queue, describe using algorithm	5
2.	Define priority queue	2
3.	What will be position of front and rear in empty circular queue	2
4.	list types of queue	2
5.	What is DEQ, give difference between input and output restricted Dqueue and program of input output operations on input restricted deque	8
6.	What will be position of front and rear in full circular queue	2
7.	Give concept of queue, and compare queue and stack	7
8.	Explain Circular Queue and list its operations	5
9.	Discuss DE Queue, give its operations	5
10.	Give application of stack and queue	5
11.	What do you mean by queue? List out the different types of queue. Write an algorithm to perform insert and delete operation on Circular Queue.	7
12.	Write a note on priority queue.	5
13.	Write condition of overflow and underflow in dequeue?	2
14.	What is double ended queue? Explain input restricted and output restricted dqueue.write algorithm of input restricted dequeue.	7
15.	Explain simulation.	5

STACK

S.NO:	QUESTION	MARKS
1.	Which condition is not required in dynamic stack?	2
2.	Explain the concept of stack. Write algorithm to reverse string using stack.	**7**
3.	Explain the difference between stack and queue with their functionality.	**7**
4.	convert expression into post fix a+(b*c-d/e*g)+h (a+b)*(c-d/e)*g+h	6
5.	How to implement stack using link list.	5
6.	What is Stack, list its operation, write down an algorithm of operations of stack.	7
7.	Give difference between stack queue	2
8.	When stack overflow occur?	2
9.	Give prefix and postfix expression for: (A-2*(B+C)-D*E)*F	3
10.	what is stack give different operations	7
11.	What is recursion give algorithm to display factorial for given num using it?	5
12.	Algorithm to implement stack using DLL.	5
13.	Convert infix to postfix	2
14.	Explain recursion. Give its advantages and disadvantages Write recursive function to display first N Fibonacci numbers.	7
15.	Explain tower of Hanoi.	7
16.	List computer applications of stack.	2
17.	Give program to convert infix to postfix expression.	8
18.	What is recursion? Which condition is necessary in recursion?	2
19.	What is stack list operations give algorithm of infix to postfix	7
20.	What is function chaining how recursion differs from it?	2

LINK LIST

S.NO:	QUESTION	MARKS
1.	Which build in function is used to create link list.	**2**
2.	Explain concept of dynamic memory allocation, how link list is appropriate.	**7**
3.	Explain concept of double link list. Write algorithm to delete and display nodes in it.	**7**
4.	Discuss traversal of single link list	5
5.	Explain process of searching in single link list.	5
6.	Explain insert in DLL.	3
7.	Write advantages of link list	2
8.	Give difference between DLL and SLL,write algorithm to perform insert and delete at particular poison in SLL	7
9.	How new node is created using structure and pointer in SLL?	3
10.	SLL create del insert algorithm	7
11.	How to display node values in reverse order for DLL give its algorithm.	7
12.	Compare array and Link List	5
13.	Give disadvantage of LL	2
14.	what do you mean by LL,list applications of LL,write algorithm for insert del ,display in SLL	7
15.	List disadvantages of link list.	3
16.	Give LL rep. of polynomial 4x3+2 x2+2x+4y2+y2.	5
17.	What do you mean by null in link list? Explain with an example	2
18.	Describe circular singly link list. Write algorithm to perform insert and delete from particular position in circular singly link list.	7

SEARCHING

S.NO:	QUESTION	MARKS
1.	What is searching? Give difference between binary and linear search. Discuss binary search algorithm for following data 11,12,30,40,44,55,60,66,77,80,88,99. Search out key=40.show all the steps of it.	7
2.	Discuss sequential and binary search method. Explain binary search with its algorithm.	7
3.	Give difference between sequential and binary search explain their performance.	5
4.	Differentiate between binary and linear search. Give algorithm of binary search	7

SORTING

S.NO:	QUESTION	MARKS
1.	Discuss various sorting methods .which method is faster and why?	7
2.	What is sorting? Compare various sorting with its advantages and disadvantages. Which is best and why?	7
3.	Name various sort method which is faster and give algorithm to perform Bubble Sort on given array.	5
4.	What are best worst and average case complexity of bubble and insertion sort?	2
5.	Short note on heap sort.	5
6.	Insertion sort with algorithm	7
7.	Difference between quick and bubble sort.	5
8.	Difference between selection and insertion sort.	2
9.	Differentiate between internal and external sort. use quick sort for data :3,1,4,5,10,7,8	7
10.	short note heap sort	5
11.	what do you mean by sorting, write an algorithm to sort array using quick sort	8

TREE

S.NO:	QUESTION	MARKS
1.	What is forest and leaf node?	2
2.	Explain Left and right subtree?	2
3.	Give difference between root & leaf node in tree.	2
4.	how many null branches are there with 20 node in BT.	2
5.	Define forest, path.	2
6.	Give expression tree for (a+b)*(c-d)/e	3
7.	Draw tree for following traversal: Inorder:Q B K C F A G P E D H R Preorder:G B Q A C K F P D E R H	5
8.	Explain 2-3 trees with example. Also explain how to search an element from 2-3 trees with data tracing.	8
9.	Define AVL tree explain possible cases during the insertion of new node in it.	7
10.	What is critical node in height balance tree?	2
11.	Define terminal and non terminal node with example	2
12.	short note AVL tree	5
13.	How a directed tree can be represented graphically in different ways? Write algorithm to convert general tree to Binary Tree	7
14.	Write application of tree	2
15.	Explain weight balanced tree and height balanced tree.	5
16.	Explain traversal technique of tree. Discuss difference between them.	7
17.	What is tree? Write difference between Complete Binary Tree & balanced Binary Tree? Discuss various terminologies of tree.	7
18.	Construct tree when: Inorder: D B A E C G F H preorder :D B E G H F C A	5
19.	Short note on 2-3 trees.	5
20.	Traversal of binary tree and its various methods.	5
21.	Differentiate between Depths First Search and Breadth First Search.	3
22.	Give difference between strictly binary tree and complete binary tree explain tree.	5
23.	What is tree? What is difference between binary tree to 2-3 tree? Discuss various terminologies related to tree	7
24.	What is tree how to insert and delete node in binary tree	7
25.	Explain 2-3 trees with example. Also explain how to search an element from 2-3 tree with proper data tracing	8
26.	Define AVL tree. Explain possible cases during the insertion of new node into it	7
27.	What is critical node in a height balance tree	2
28.	Short note 2-3 tree	5
29.	Explain weight balance and height balance tree	8