

KADI SARVA VISHWAVIDYALAYA
B.E SEMESTER III EXAMINATION (NOV- 2018)

SUBJECT CODE: CT303 N

SUBJECT NAME: Data Structure and Algorithm

DATE: 24/11/2018

TIME: 10:30 to 1:30

TOTAL:MARKS: 70

Instructions:

1. Answer each section in separate Answer sheet.
2. Use of scientific Calculator is permitted.
3. At Indicate clearly, the options you attempted along with its respective question number
4. Use the last page of main supplementary for rough work

SECTION 1

Q:1 (All Compulsory)

- (A) Briefly explain various linear and non-linear data structures along with their applications. 05
- (B) Define the Following Terms:
1) Data Structure
2) Sparse Matrix
3) Recursion
4) Primitive data type
5) Circular Linked list. 05
- (C) What is Stack? List out different operation of it and write algorithm for any two operation. 05

OR

- (C) Write the algorithm of insert and delete of circular queue. 05

Q:2 (A) Write an algorithm for insert and delete operations for doubly linked list 05

- (B) Convert given Infix String to Postfix notation using stack $(a+b \uparrow c \uparrow d)^* (e + f/d)$ 05

OR

- (A) Explain algorithm of Reverse Polish notation. 05

- (B) Convert given Infix String to Postfix notation using stack $a + b * c - d / e * h$ 05

Q:3 (A) Explain the Problem of Tower of Hanoi with algorithm. 05

- (B) Compare: (1) Linked-list and Array (2) Circular queue and Simple Queue. 05

OR

- (A) What is priority queue? Explain the array representation of priority queue 05

- (B) Write algorithms to insert and delete an element after a given node in a singly linked list. 05

SECTION 2

Q:4 (All Compulsory)

- (A) With figure, explain the following terms: (1) Depth of a tree (2) Strictly binary tree (3) Ancestor nodes (4) Graph (5) Minimum spanning tree 05
(B) Explain the difference between insertion sort and selection sort with an example. What is the time complexity of these algorithms? How? 05
(C) List out different hash methods and explain any three methods. 05
OR
(C) Explain Depth First Search and Breadth First Search in graphs with an example 05

Q:5 (A) Explain AVL tree with example 05

- (B) Explain the trace of merge sort on following data.
42,23,74,11,65,58,94,36,99,87

OR

- (A) Write Kruskal's algorithm for minimum spanning tree and explain with an example. 05
(B) Explain the trace of bubble sort on following data.
42,23,74,11,65,58,94,36,99,87 05

Q:6 (A) Generate a binary search tree for following numbers and perform in-order and post-order traversals: 7, 4, 2, 3, 6, 5, 12, 9, 8, 11, 19, 15, 20. 05

- (B) Write Prim's algorithm for minimum spanning tree with an example 05

OR

- (A) What is a binary search tree? Create a binary search tree for inserting the following data. 13, 3, 4, 12, 14, 10, 5, 1, 8, 2, 7, 9, 11, 6, 18. Explain deletion in the above tree. 05
(B) Explain Sequential, Indexed Sequential and Random file organizations. 05

KADI SARVA VISHWAVIDHYALAYA
B.E. Semester-III Examination- Nov-2017

Subject Code:- CE/IT 304

Subject Name:- Data Structures and Algorithms

Date:- 17th Nov, 2017

Time:- 10:30 am to 1:30 pm

Total Marks:- 70

Instructions:

1. Answer each section in separate Answer sheet.
2. Use of scientific calculator is permitted.
3. All questions are **Compulsory**.
4. Indicate **clearly**, the options you attempt along with its respective question number.
5. Use the last page of main supplementary of **rough work**.

Section - I

Q-1 (All compulsory)

- (A) Define the term 'data structures'. Explain how data structures are useful in solving various problems. [5]
- (B) Explain how a polynomial can be represented using sequential storage representation and linked storage representation. [5]
- (C) Explain primitive and non-primitive data types with examples. [5]

OR

- (C) Explain time and space analysis of algorithms with examples. [5]

Q-2 Answer the following questions.

- (A) Write a recursive algorithm to find the factorial of a given number. Explain through example which data structure is used to handle the recursive calls. [5]
- (B) Write algorithms for performing an insertion and a deletion in circular queue and trace the operations using appropriate data. [5]

OR

- (A) Explain through algorithm how stack can be used to RECOGNIZE the palindrome strings of odd length. [5]
- (B) Write algorithms for performing an insertion and a deletion from an input-restricted double-ended queue and trace the operations using appropriate data. [5]

Q-3 Answer the following questions.

- (A) Differentiate between an array and linked-list. [5]
- (B) Write an algorithm to insert an element at the beginning of the doubly linked-list. [5]

OR

- (A) Write an algorithm to insert an element at the end of the singly linked-list. [5]
- (B) Construct AVL tree from the following data:
54, 78, 92, 86, 37, 12, 9, 23, 26, 35, 43, 76, 51 [5]

PTO...

Section - II

Q-4 (All compulsory)

- (A) Construct the inorder threaded binary tree from the binary tree shown in figure 1. [5]
(B) Write inorder, preorder and postorder traversals of the binary tree shown in figure 1. [5]
(C) What is a graph? Discuss the applications of a graph. [5]

OR

- (C) Write the Breadth First Search (BFS) and Depth First Search (DFS) traversals [5] of the graph shown in figure 2.

Q-5 Answer the following questions.

- (A) Write an algorithm for insertion sort and explain using example. [5]
(B) Sort the following data using quick sort algorithm (trace all the steps): [5]
34, 90, 21, 43, 87, 2, 67, 53, 9, 23, 82.

OR

- (A) Write an algorithm for merge sort and explain using example. [5]
(B) Sort the following data using radix sort algorithm (trace all the steps): [5]
134, 790, 321, 43, 287, 2, 67, 353, 339, 423, 282.

Q-6 Answer the following questions.

- (A) Explain binary search algorithm with example. [5]
(B) What is hashing? Explain any one collision-resolution technique. [5]

OR

- (A) Explain linear search algorithm with example. [5]
(B) Explain the structure of the indexed sequential files. [5]

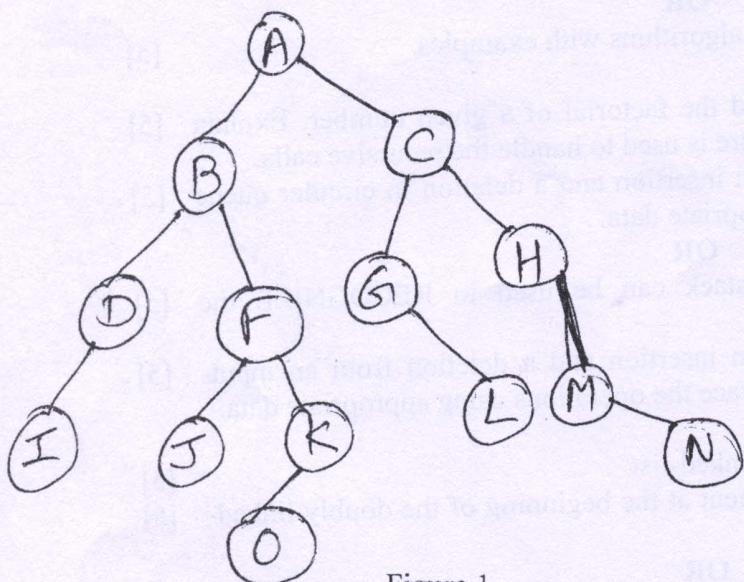


Figure 1

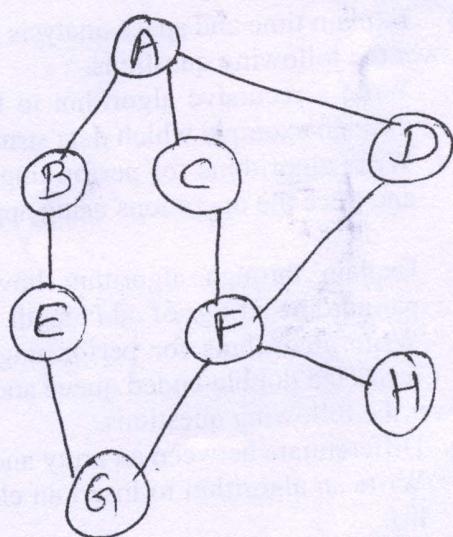


Figure 2

----- All the Best -----

Seat No. _____

Enrl. No. _____

KADI SARVA VISHWAVIDYALAYA

BE SEMESTER-III Regular Examination DECEMBER-2016

Subject Name: Data Structures and Algorithm

Subject Code: CE/IT-304

Date: 26/12/2016

Time: 10:30 am to 01:30 pm

Total Marks: 70

Instructions:

1. Answer each section in separate answer sheet.
2. Use of scientific calculator is permitted.
3. Indicate clearly, the option you attempt along with its respective question number.

Section-I

Q-1 (A) Explain asymptotic notations regarding complexity of an algorithm (Ω , Θ , O) [5]

(B) Answer the following questions. (Must write question along your answer) [5]

- (i) Let S is an instance of the Stack. Consider the following sequence of operations performed on S which initially contains element with 55 as the top most elements. What will be the element at the top of the stack after the above sequence of operations?

```
S.push(7);  
S.push(20);  
S.push(35);  
S.pop();  
S.push(14);  
S.pop();  
S.pop();
```

- (ii) Let Q be an instance of a Queue, **Q.enqueue(x)** is insertion and **Q.dequeue()** deletion functions. Consider the following code and determine what will be the value of the variable count, when completes its execution?

```
Q.enqueue(1);  
int count=1;  
do  
{  
    count=count+1;  
    x = Q.dequeue();  
    Q.enqueue( 2*x );  
    Q.enqueue( 4*x );  
} while(x != 32);
```

- (iii) Evaluate the **postfix** expression 12 , 7 , 3 , - , / , 2 , 1 , 5 , + , * , + by showing stack contents at each stage.

- (iv) Which data structure is used in Breadth First Search of a graph to hold nodes?

- | | |
|-----------|-----------|
| (a) Stack | (c) Tree |
| (b) queue | (d) Array |

- (v) The minimum number of arithmetic operations required to evaluate the polynomial $P(X) = X^5 + 4X^3 + 6X + 5$ for a given value of X using only one temporary variable.

- | | |
|-------|-------|
| (a) 6 | (c) 8 |
| (b) 7 | (d) 9 |

(C) Explain DQUEUE in detail with insertion and deletion algorithms. [5]

OR

(C) Explain Priority Queue in detail with management of priority queue data after insertion and deletion operations on it. [5]

- Q-2** (A) Convert the following **infix** expression to **postfix** expression along with showing status of all data structures at each step: $A * (B + (C + D) * (E + F) / G) * H$ [5]
 (B) Trace the algorithm showing stack to solve the Tower of Hanoi problem for $n=3$. [5]

OR

(A) Write an algorithmic to convert **postfix** expression to **infix**. Also write trace to convert a postfix expression: AB-CDE+ * +FG+ - to **infix** along with showing status of necessary data structures at each step. [5]
 (B) Trace the algorithm showing stack to calculate the factorial of $n=5$. [5]

Q-3 (A) Explain Circular Linked list with the significance of the **HEAD** node. [5]
 (B) Write an algorithm of Binary Search. Show the trace to search $x=55$ from sequence of data 15, 23, 38, 51, 55, 62, 88. [5]

OR

(A) Convert the following expression into **prefix and postfix** [5]
 (i) $A + ((B - C) * (D - E) + F) / G \$ (H - J)$ (ii) $(A + B \$ C \$ D) * ((E + F) / D)$
 (B) Write an algorithm to **insert** an element into Doubly link list. [5]

Section-II

- Q-4** (A) Write short note on Threaded Binary tree. [5]

(B) Answer the following questions [5]

 - The following sorting algorithms maintain two sub-lists, one sorted and one to be sorted –

(a) - Selection Sort	(c) - Merge Sort
(b) - Insertion Sort	(d) - both (a) and (b)
 - The operation of processing each element in the list is known as

(a) Sorting	(c) Inserting
(b) Merging	(d) Traversal
 - A binary search tree whose left subtree and right subtree differ in height by at most 1 unit is called

(a) AVL tree	(c) 2-3 tree
(b) B- tree	(d) None of the above
 - The post-order traversal of a binary tree is DEBFCA, then the inorder traversal of a binary tree is.....

(a) ABCD E	(c) ABDECF
(b) ADBFEC	(d) None
 - Consider the tree shown in Fig-1 and answer the following questions.
 - How many leaves does it have?
 - How many of the nodes have at least one sibling?
 - What is the depth of the tree?
 - How many children does the root have?

(C) Sort the numbers 77, 12, 8, 39, 27, 21, 44, 18, 6, 47, 11, 37, 60, 56 using Heap Sort by showing status of data structures at each step. [5]

OR

(C) Sort the numbers 77, 12, 8, 39, 27, 21, 44, 18, 6, 47, 11, 37, 60, 56 using Quick Sort. [5]

Q-5 (A) Write recursive algorithms of **Inorder**, **Preorder** and **Postorder** traversals. Derive all traversal sequences of binary tree shown in Fig-2. [5]

(B) Insert 38, 75, 85, 15 in the **AVL Tree** shown in Fig-3. Draw rebalancing of tree after every insertion. [5]

OR

- Q-5** (A) Write steps to convert the **General Tree** to **Binary Tree**. Also convert the General tree shown in **Fig-4** to Binary tree. [5]
 (B) Write an algorithm of **Breadth First Search** and **Depth First Search**. Traverse the graph shown in **Fig-5** using both methods. [5]

- Q-6** (A) Write answers for following operations with respect to **Binary Search Tree (BST)** [5]
 (i) Construct BST for data 52, 27, 62, 26, 22, 45, 97, 33, 16, 49, 35, 88.
 (ii) Reconstruct tree of **operation-(i) output** by performing operations:
 1. Node 90 is added. 2. Node 26 is deleted.
 (B) Given the key inputs 4322, 1334, 1471, 9679, 1989, 6171, 6173, 4199 and the hash function $h(\text{key}) = \text{key} \% 9$. Draw the memory allocation table along with resolution of collision (if any) using **Linear probing**. [5]

OR

- (A) Create a Minimum Spanning Tree (MST) of graph shown in **Fig-6** using **Prim's** and **Kruskal's** method. [5]
 (B) For the given sequence of keys 379452, 121267, 070918, 045128, 166702, 367173, 572556, 921309 with storage of 307 buckets, draw allocation table using **bucketing** method. Each bucket can store data of 2 keys. [5]

---X---

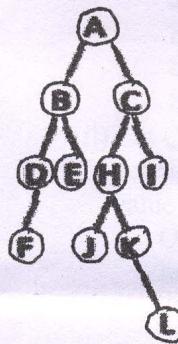


Fig-1

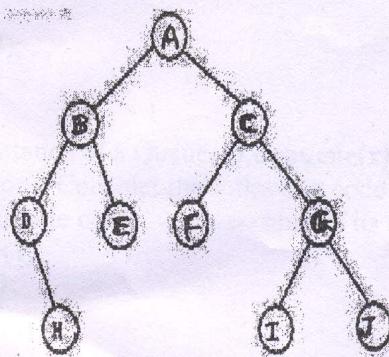


Fig-2

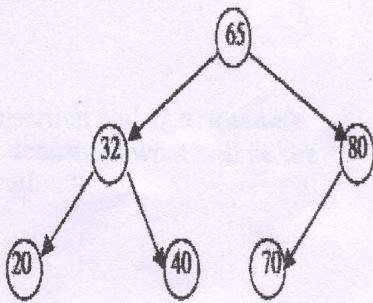


Fig-3

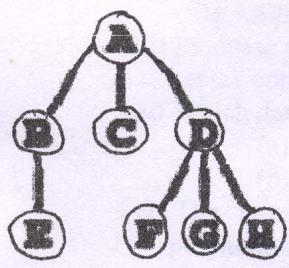


Fig-4

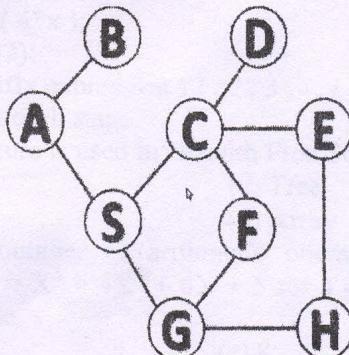


Fig-5

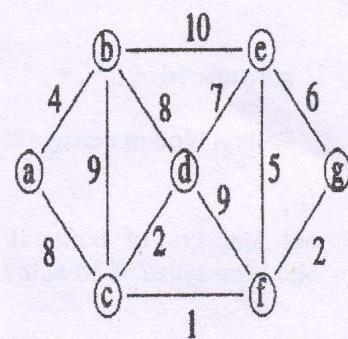


Fig-6

KADI SARVA VISHWAVIDHYALAYA

B.E. Semester-III C.E.I.T.

Subject Code:-CE/IT 304

Subject name:-DATA STRUCTURE AND ALGORITHMS

Date:- 16.4.15

Time:- 10:30 to 11:30

Total Marks:-70

Instruction:

1. Answer each section in separate Answer sheet.
2. Use of Scientific Calculator is permitted.
3. All questions are **Compulsory**.
4. Indicate **clearly**, the options you attempt along with its respective question number.
5. Use the last page of main supplementary of **rough work**.

Section-I

Q-1 (All compulsory)

- (A) Define data structure. Briefly explain linear and nonlinear data structures with their applications. [5]
(B) Write an algorithm for stack operations Push and Pop. Assume stack is implemented using array. [5]
(C) Discuss best case, average case and worst case time analysis with example. [5]

OR

- (C) Evaluate the following infix expression: [5]
 $2 \$ 3 + 5 * 2 \$ 2 - 6 / 6$

Q-2 Answer the following Questions.

- (A) Write an algorithm to insert a node in an ordered linked list. [5]
(B) Translate the following string into polish notation and trace the content of stack : A - (B / C + (D % E * F) / G) * H [5]

OR

- (A) Explain delete operation of doubly linked list. [5]
(B) Explain insert and delete function of circular queue. [5]

Q-3 Answer the following Questions.

- (A) Given the following traversals create a binary tree from that. Also give the Postorder traversal for the same. [5]
Preorder = {7,10,4,3,1,2,8,11} Inorder = {4,10,3,1,7,11,8,2}

- (B) Explain the application of linked-list. [5]

OR

- (A) Define threaded binary tree. What are the advantages of threaded binary tree? [5]
(B) Define tree. Write an algorithm to do in-order traversal and post-order traversals of Binary Search Tree. [5]

Section-II

Q-4 (All compulsory)

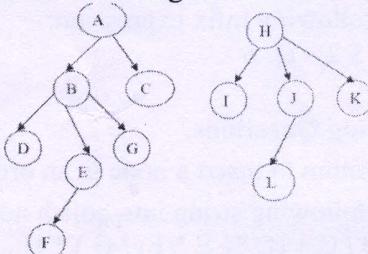
- (A) Define the following terms [5]
i) Node
ii) Sibling
iii) Path
iv) Indegree & outdegree of a vertex
v) Connected graph
- (B) Construct a binary search tree for the following sequence. [5]
45,56,39,12,34,78,54,67,10,32,89,81
- (C) Explain Binary search with example. [5]
- OR**
- (C) Explain linear search with example. [5]

Q-5 Answer the following Questions.

- (A) Explain DFS traversal of Graph using example. [5]
- (B) Write an algorithm for selection sort. [5]

OR

- (A) Trace procedure to convert following forest into binary tree. [5]



- (B) Write an algorithm for quick sort. [5]

Q-6 Answer the following Questions.

- (A) Explain various multiple key access file organization in brief with advantages and disadvantages of each method. [5]
- (B) The keys 12, 18, 13, 2, 3, 23, 5 and 15 are inserted into an initially empty hash table of length 10 using open addressing with hash function $h(k) = k \bmod 10$ and linear probing. What is the resultant hash table? [5]

OR

- (A) Write a short note on inverted key file organization. [5]
- (B) What do you mean by Hashing? Explain any FOUR hashing techniques. [5]

KADI SARVA VISHWAVIDHYALAYA

B.E. Semester-III C.E./I.T.

Subject Code:-CE/IT 304
Date:-26/04/2014

Subject name:-DATA STRUCTURE AND ALGORITHMS
Time:-10:30 am to 1:30 pm

Total Marks:-70

Instruction:

1. Answer each section in separate Answer sheet.
2. Use of Scientific Calculator is permitted.
3. All questions are **Compulsory**.
4. Indicate **Clearly**, the options you attempt along with its respective question number.
5. Use the last page of main supplementary of **rough work**.

Section-I

Q-1 (All compulsory)

(A) Define following terms:-

[5]

- Tree
- Graph
- Stack
- Queue
- Array

(B) Describe operations on a Stack.

[5]

(C) Explain Tower of Hanoi Problem.

[5]

OR

(C) What is sparse matrix? Explain memory representation of sparse matrix.

[5]

Q-2

(A) Convert following infix expressions to the postfix expressions. Shows stack trace. $(P + Q) * R + S / (T + U * V) + W$

[5]

(B) Write an algorithm to insert a node into singly linked list.

[5]

OR

(A) Write an algorithm to delete a node from singly linked list.

[5]

(B) Write an algorithm/program to implement insert operation into a Queue.

[5]

Q-3

(A) Differentiate between Array and Stack.

[5]

(B) Give advantage and uses of a Circular Linked List.

[5]

OR

(A) Explain Priority Queue.

[5]

(B) Construct the Binary tree for the following Expression:

[5]

$$((a + b) - (c * d)) \% ((e ^ f) / (g - h))$$

Section-II

Q-4 (All compulsory)

- (A) Explain insertion operation in binary search tree. [5]
(B) Differentiate between depth-first search and breadth-first search traversal of a graph. [5]
(C) Explain prim's algorithm. [5]

OR

- (C) What is AVL tree? Explain insertion operation in it. [5]

Q-5

- (A) Create a binary search tree for the following data :
98 , 2 , 48 , 12 , 56 , 32 , 4 , 67 , 23 , 87 , 23 , 55 , 46 [5]
(B) Explain Bubble sort using example. [5]

OR

- (A) Explain BFS (Breadth First Search) with example. [5]
(B) Explain Insertion sort with example. [5]

Q-6

- (A) What is collision in hash table? Explain open addressing techniques to resolve a collision. [5]
(B) Write a short note on inverted key file organization. [5]

OR

- (A) Consider hash table with size= 9. Using Chaining method , insert the keys 7, 24, 18, 52, 36, 54, 11, 23, 60 in chained hash table. Use $h(k) = k \bmod m$. [5]
(B) Write a short note on sequential file organization. [5]

KADI SARVA VISHWAVIDHYALAYA

B.E. Semester-III C.E./I.T.

Subject Code:-CE 304

Date:-27/11/2013

Subject name:-DATA STRUCTURE AND ALGORITHMS

Time:- 10:00 am TO 1:00 pm

Total Marks:-70

Instruction:

1. Answer each section in separate Answer sheet.
2. Use of Scientific Calculator is permitted.
3. All questions are **Compulsory**.
4. Indicate **Clearly**, the options you attempt along with its respective question number.
5. Use the last page of main supplementary of **rough work**.

Section-I

Q-1 (All compulsory)

- (A) Define data structure. Briefly explain linear and non linear data structures [5]
With their applications.
- (B) What is sparse matrix? Explain memory representation of sparse matrix. [5]
- (C) What are the advantages and disadvantages of stack and queue [5]
implemented using linked list over array?

OR

- (C) Convert following infix expressions to the postfix expressions. Shows stack [5]
trace. $(A + B) * D + E / (F + G * D) + C$

Q-2 Answer the following Questions.

- (A) Write an algorithm/program to implement insert operation into a Circular [5]
Queue using array representation of Queue.
- (B) Write an algorithm to insert a new node into doubly linked list. [5]

OR

- (A) What is Tower of Hanoi? Explain it with $n=3$. [5]
- (B) Write an algorithm to delete a node from doubly linked list. [5]

Q-3 Answer the following Questions.

- (A) Explain Priority Queue. [5]
- (B) What is the meaning of height balanced tree? How rebalancing is done in [5]
Height balanced tree?

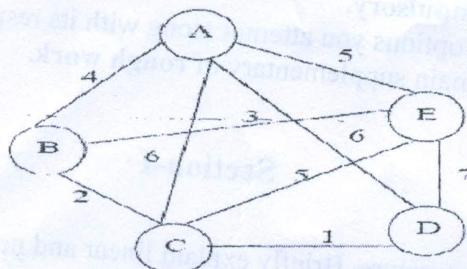
OR

- (A) Write a short-note on threaded binary tree. [5]
- (B) Describe advantages and disadvantages of linked list over array. [5]

Section-II

Q-4 (All compulsory)

- (A) Construct a tree for the given inorder and postorder traversals. And also find [5] preorder traversal for that tree.
Inorder:- DGBAHEICF
Postorder:- GDBHIEFCA
- (B) Define spanning tree and minimum spanning tree. Find the minimum [5] Spanning tree of the graph shown in fig.



- (C) Create a binary search tree for the following data : [5]
50, 25, 75, 22, 40, 60, 80, 90, 15, 30

OR

- (C) Explain BFS (Breadth First Search) with example. [5]

Q-5 Answer the following Questions.

- (A) Explain Selection sort using example. [5]
(B) Sort the following data using heap sort method. [5]
21, 34, 12, 67, 98, 67, 44, 81.

OR

- (A) Explain quick sort with example. [5]
(B) Explain DFS (Depth First Search) with example. [5]

Q-6 Answer the following Questions.

- (A) What do you mean by hashing? Which is various hash function? Explain [5] each one in brief.
(B) Write a short note on indexed file organization. [5]

OR

- (A) The keys 12, 18, 13, 2, 3, 23, 5 and 15 are inserted into an initially empty [5] hash table of length 10 using open addressing with hash function $h(k) = k \bmod 10$ and linear probing. What is the resultant hash table?
(B) Write a short note on inverted key file organization. [5]

Enrollment No.

KADI SARVA VISHWAVIDHYALAYA

B.E. SEMESTER-III EXAMINATION (DECEMBER - 2015)

SUBJECT CODE: CE 304/IT 304 SUBJECT NAME: Data Structures and Algorithms

DATE: 5/12/2015

TIME: 10:30 a.m. TO 1:30 p.m.

TOTAL MARKS: 70

Instructions:

1. Answer each section in separate Answer Sheet.
2. Use of scientific Calculator is permitted.
3. All questions are compulsory.
4. Indicate **clearly**, the options you attempted along with its respective question number.
5. Use the last page of main supplementary for rough work.

SECTION-1

Q.1 (a) Discuss best case, average case and worst case time analysis with example. [5]

(b) Translate the following string into Polish notation and trace the content of stack [5]
 $A - (B / C + (D \% E * F) / G) * H$

(c) Explain the application of stack, queue, and linked list in detail. [5]

OR

(c) $((A/(B^C))+(D^E))-(A^C)$. Convert from infix to postfix form by showing [5]
stack implementation and then put the values A=27, C=2, E=17, D=3, B=3

Q.2 (a) What is Tower of Hanoi? Explain it with n=3. [5]

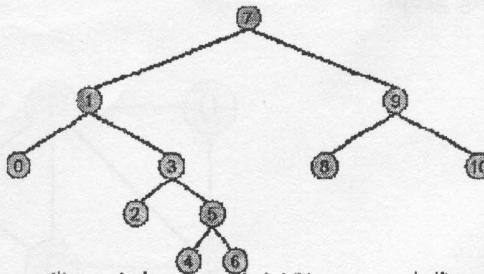
(b) Given the following traversals create a binary tree from that. Also give the [5]
postorder traversal for the same.

preorder = {7,10,4,3,1,2,8,11}

inorder = {4,10,3,1,7,11,8,2}

OR

Q.2 (a) Give traversal order of following tree into inorder, preorder and postorder. [5]



(b) Write an algorithm to insert node in a linear singly link list.

Q.3 (a) Sort the list 35, 20, 40, 100, 3, 10, 15 using insertion sort method. [5]

(b) Consider inserting the keys 76, 26 37, 59, 21, 65, 88 into a hash table of size $m=11$ using linear probing. Illustrate the result of inserting of these keys using linear probing method. The hash function for linear probing is given below.

$$h(k, i) = [h'(k) + i] \bmod m \quad \text{for } i=0,1,2,3,\dots,m-1.$$

Further consider that the primary hash function is $h'(k) = k \bmod m$.

OR

Q.3 (a) Demonstrate the insertion of keys 28, 5, 19, 15, 33, 12, 12, 17, 77, 20 into a hash table with 9 slots and collision resolved by synonym chaining. Let the hash function be $h(k) = k \bmod 9$. [5]

(b) $A = (38 \ 81 \ 22 \ 48 \ 13 \ 69 \ 93 \ 14 \ 45 \ 58 \ 79 \ 72)$. Sort the given array by using Quick Sort algorithm. [5]

SECTION-2

Q.4 (a) Insert the following nodes in AVL (Height Balanced) tree. [5]
55, 66, 77, 15, 11, 33, 22, 35, 25, 25, 44, 88, 99.

(b) Define the following terms (any five) : Path, Cycle, Degree of vertex, Sibling, Height Balanced Tree, Strictly binary tree, in degree [5]

(c) What do you mean by Hashing? Explain any THREE hashing techniques [5]
OR

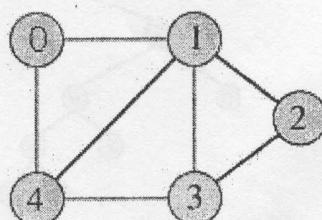
(c) Write a short note on Breadth First Search and Depth First Search in graph. [5]

Q.5 (a) Insert the following nodes in the AVL tree. [5]
January, February, March, April, May, June, July, August, September, October, November, December.

(b) Explain insert and delete function of circular queue. [5]
OR

Q.5 (a) Write an algorithm to perform Binary Searching. [5]

(b) Show the possible adjacency matrix and adjacency list representation for the following graph: [5]



Q.6 (a) Define data structure. List the various linear and non-linear data structures and explain them in brief. [5]

(b) Explain following (any two): (i) DQUEUE (ii) Priority Queue (iii) Circular Queue. [5]

OR

Q.6 (a) Write a short note on Time Complexity of an algorithm. [5]

(b) Write an advantage of link list, doubly link list and circular link list. [5]

*******BEST OF LUCK*******