Jyothy Charitable Trust®

Jyothy Institute of Technology

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Approved by The **A**ll **I**ndia **C**ouncil for **T**echnical **E**ducation (**AICTE)** - New Delhi;

Affiliated to **V**isvesvaraya**T**echnological **U**niversity**(VTU)**, Belagavi;

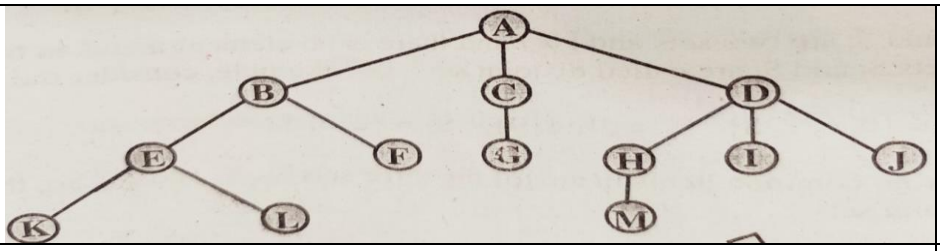
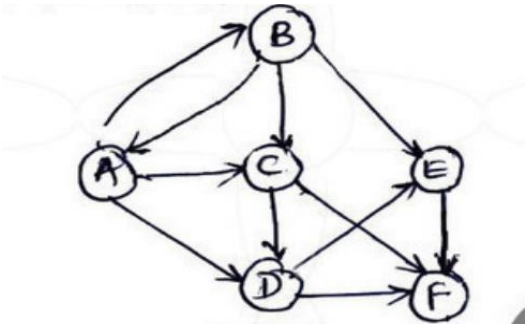
Department of Computer Science & Engineering

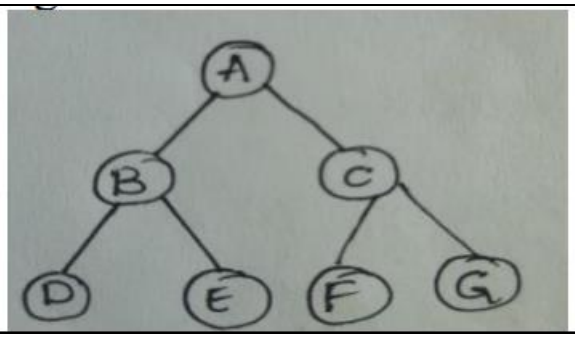
Accredited by **N**ational **B**oard of **A**ccreditation **(NBA)** -New Delhi.

EXHAUSTIVE QUESTION BANK

Batch	**2022 - 2026**		
Year/Semester/Section	**2nd/3rd/B**		
Course Code -Title	**BCS304 – Data Structures andApplications**		
Module No. -Title	**4 –Trees and Graphs**		
Name of the Course In charge	**Mrs. Prathibha KN**	**Designation**	**Asst.Prof.**

QNo.	Questions	COs	RBT
1	Define Binary search tree. Draw the BST for the following input: 14, 15, 4, 9, 7, 18, 3, 5, 16, 20, 17, 9. Also, Develop a search function in C to search a key value in that tree	CO4	L1
2	Construct a binary search tree by using the following in-order and preorder traversals: Inorder : BCAEDGHFI Preorder : ABCDEFGHI (06 Marks)	CO4	L3
3	Write the iterative search and Recursive search algorithm for a Binary Search Tree?	CO4	L1
4	Write the routines for a)Copying binary tree b)testing equality of binary trees	CO4	L3
5	Write a C function to insert an element in a BST.	CO4	L2
6	What is a selection tree? Explain its types with an example?	CO4	L2
7	Construct a Winner Tree and loser tree for the following data? 10 9 20 6 8 9 90 17 15 20 20 15 15 11 95 18 16 38 30 25 50 16 99 20 Run1 Run2 Run3 Run4 Run5 Run6 Run7 Run8	CO4	L3
8	What is a forest**?** **T**raverse the following forest in preorder,postorder and inorder	CO4	L3

			
9.	Explain the following representation of graph using 1)Adjacency list 2)Adjacency Matrix 3)Multilist 	CO4	L2
10.	What are disjoint sets? How to represent disjoint sets? Explain different operations performed on disjoint sets with an example?	CO4	L2
11.	Define the following terminologies with an example: a)**digraph** b)**weighted graph** c)**self loop** d)**Complete graph** e)**Simple Pat**h f)**length of the path** g)**cycle** h) **Connected Graph** i)**Spanning Tree** j)**BiConnected graph** k)**Disconnected graph**	CO4	L1
12	What are the methods used for traversing a graph. Explain any one with example and write function for same.?	CO4	L3
13.	Interpret the Breadth-First-Search (BFS) and Depth-First-Search(DFS) for the following graph given below:	CO4	L2

13		CO4	L3

Course In charge **DAEC** **HOD**