



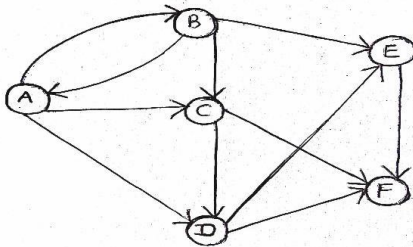
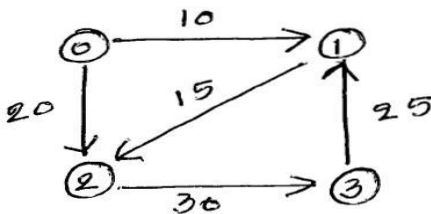
KSIT, Bengaluru

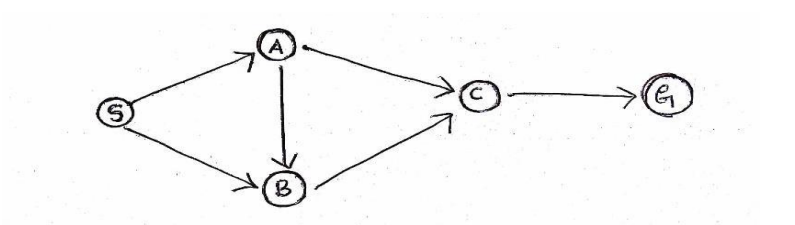
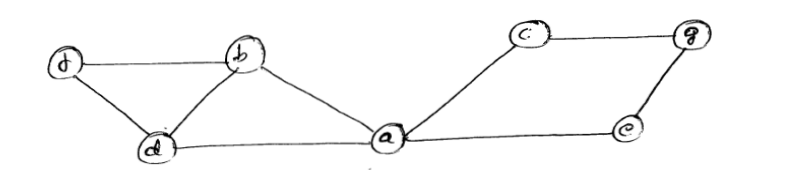
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
EXHAUSTIVE QUESTION BANK

Academic Year	2024-2025 [Odd Semester]		
Batch	2023-2027		
Year/Semester/section	IV / III / B		
Subject Code-Title	BCS304- Data Structures and Applications		
Name of the Instructor	Mr. RAGHAVENDRACHAR S	Dept	CSE

Sl.No	Questions	K Level
1.	Develop a following c functions with respect to singly linked list (SLL) <ul style="list-style-type: none">➤ Create node () (Should define structure definition and pointer)➤ Insert_front ()➤ Insert_end ()➤ Insert_between ()	Applying
2.	Develop a C program to implement stack using singly linked list (SLL)	Applying
3.	Develop a C program to implement queue using singly linked list (SLL)	Applying
4.	Develop a c function to find the addition of given two polynomials using singly linked list (SLL)	Applying
5.	Develop a following c functions with respect to singly linked list (SLL) <ul style="list-style-type: none">➤ Concatenation of two lists➤ Reverse of a list➤ Searching for a key node➤ Display and count the number of nodes	Applying

6.	<p>Construct linked list representation for the following given sparse matrix.</p> $\begin{bmatrix} 2 & 0 & 0 & 0 \\ 4 & 0 & 0 & 3 \\ 0 & 0 & 0 & 0 \\ 8 & 0 & 0 & 1 \\ 0 & 0 & 6 & 0 \end{bmatrix}$	Applying
7.	<p>Develop a following c functions with respect to Doubly linked list (DLL)</p> <ul style="list-style-type: none"> ➤ Create node () (Should define structure definition and pointer) ➤ Delete_front () ➤ Delete_end () ➤ Delete_between () 	Applying
8.	<p>Make use of suitable example explain the following</p> <ul style="list-style-type: none"> ➤ Tree ➤ Parent ➤ Degree ➤ Level of a Tree ➤ Height of a Tree 	Applying
9.	<p>Make use of suitable example explain the following tree representations</p> <ul style="list-style-type: none"> ➤ List Representation ➤ Left child right sibling representation ➤ Binary tree representation 	Applying
10.	<p>Make use of suitable example explain the following representation of a binary tree</p> <ul style="list-style-type: none"> ➤ Array Representation ➤ Linked Representation 	Applying
11.	<p>i. Develop a recursive c functions for the following tree traversal approaches</p> <ul style="list-style-type: none"> ➤ Pre order ➤ In order ➤ Post order <p>ii. Develop a c function for level order traversal</p>	Applying

12.	<p>Construct the Binary tree for the following Sequences.</p> <p>i. Postorder: 7 5 3 2 8 4 6 1</p> <p> Inorder: 7 5 1 3 8 2 6 4</p> <p>ii. Inorder: D B E A F C</p> <p> Preorder: A B D E C F</p>	Applying
13.	<p>Construct an expression tree for the following given expression $((6 + (3 - 2) * 5) ^ 2 + 3)$</p>	Applying
14.	<p>Identify the disadvantages of Binary Tree. Build the threaded binary tree for the following given list of elements 10, 20, 30, 40, 50</p>	Applying
15.	<p>Develop the following C functions with respect to threaded binary trees</p> <ul style="list-style-type: none"> ➤ To find the In order successor ➤ Inserting a node 	Applying
16.	<p>Make use of suitable example explain the following</p> <ul style="list-style-type: none"> ➤ Graph ➤ Adjacent Vertices ➤ Cycle ➤ Length of the Path ➤ Degree of a node ➤ Weighted graph 	Applying
17.	<p>Construct Adjacency matrix and Adjacency linked for the following given graph</p> 	Applying
18.	<p>Construct Cost Adjacency Matrix and Cost Adjacency linked list for the following given graph</p> 	Applying

19.	<p>Construct BFS Traversal for the following given graph (Source Vertex is S)</p>  <pre> graph LR S((S)) --> A((A)) S((S)) --> B((B)) A((A)) --> C((C)) B((B)) --> C((C)) C((C)) --> E((E)) </pre>	Applying
20.	<p>Construct DFS Traversal for the following given graph (Source Vertex is a)</p>  <pre> graph LR a((a)) --- b((b)) a((a)) --- c((c)) a((a)) --- d((d)) a((a)) --- e((e)) b((b)) --- d((d)) c((c)) --- f((f)) e((e)) --- f((f)) </pre>	Applying