GIET UNIVERSITY, GUNUPUR – 765022

B.C.A (Second Semester) Regular Examinations, May – 2024

BCA23203 – Data Structures

Time: 3hrs | Maximum: 60 Marks

(The figures in the right hand margin indicate marks)

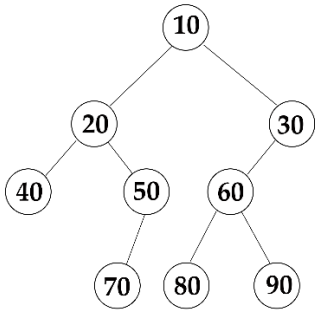
PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. Differentiate linear and nonlinear data structure.	CO1	K4
b. How to initialize an array? Explain with an example.	CO1	K2
c. List three applications of stack.	CO2	K1
d. List the drawbacks of tree array representation.	CO3	K1
e. Define cyclic graph. Give an example.	CO4	K2

PART – B **(10 x5=50 Marks)**

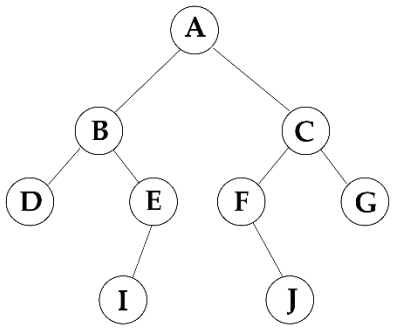
Answer ***ALL*** questions	Marks	CO #	Blooms Level
2. a. Create a structure named as Student and store 2 student details and display their name, roll no & age.	5	CO1	K4
b. Explain dot operator with an example.	5	CO1	K2
(OR)			
c. Compile an algorithm for merging two sorted arrays.	5	CO1	K3
d. Write an algorithm for multiplication of two 3X3 matrix.	5	CO1	K1
3.a. Illustrate an algorithm for PUSH() and POP() operation in stack by using array representation.	5	CO2	K2
b. Draft an algorithm for insertion and deletion operation in queue by using linked representation.	5	CO2	K2
(OR)			
c. Convert the following infix expression to postfix expression using Stack. A - (B / C + (D % E * F) / G) * H	10	CO2	K2
4.a. Draft an algorithm for insertion and deletion operation in queue by using array representation.	5	CO2	K2
b. Write algorithms for insertion, deletion and display operations on a doubly linked list.	5	CO2	K1
(OR)			

c.	Write algorithms for insertion, deletion and display operations on a singly linked list.	5	CO3	K1
d.	Compile an algorithm for transpose matrix.	5	CO3	K3
5.a.	Define Binary tree. Construct a binary search tree for the data.	5	CO3	K2
	S= {416,891,456,765,111,654,345,256,333}			
b.	Construct linked representation of given binary tree.	5	CO3	K2



(OR)

c.	Discuss about the In-order, Pre-order and post-order traversal method of the given tree and write the algorithms for all methods.	10	CO3	K2

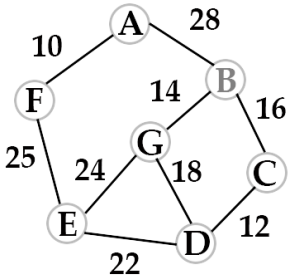


6.a.	Describe the steps of selection sort in the given array .	10	CO4	K2

11	22	55	33	44

(OR)

b.	Create the minimum spanning tree for the given graph.	10	CO4	K4



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