D (Printed Pages 4)

(20221) Roll No. .....

B.Sc.(Com.Sc.)-III Sem.

NP-3604

B.Sc. (Computer Science)

Examination, Dec.-2020

DATA STRUCTURE USING 'C'

(BCS-303)

Time : Three Hours] *[Maximum Marks : 75*

Note : Attempt all the Sections as per instructions.

Section - A

(Very Short Answer Questions)

Note : Attempt **all** questions. 3×5=15

1. What do you mean by the term Time-space trade-off? 3
2. Explain D-Queues and priority Queues. 3
3. Explain the working of Threaded Binary Trees. 3

P.T.O.

4. Write about B Tree index files. 3
5. Write an algorithm to bubble sort a list of n elements. 3

Section - B

(Short Answer Questions)

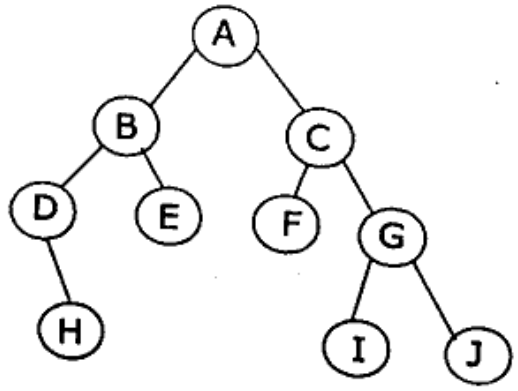
Note : Attempt any **two** questions. 2×7.5=15

6. Write an algorithm for postfix expression, evaluate it and show the contents of stack for the following postfix expression. 7.5

   623+-382/+*2&3+

7. Traverse the given tree using Inorder and postorder traversals. 7.5

   Given Trees:



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8. Sort the given list using Quick sort also write its algorithm 7.5

65 70 75 80 85 60 55 50 45

Section - C

(Detailed Answer Questions)

Note : Attempt any **three** questions. $3 \times 15 = 45$

9. (a) Write an algorithm for inserting and deleting an element from a circular queue. 10

(b) List some applications of graphs. 5

10. (a) Build a Huffman Tree from the following frequency table 10

A	B	C	D	E	F	G	H
.20	.04	.07	.11	.32	.06	.05	.15

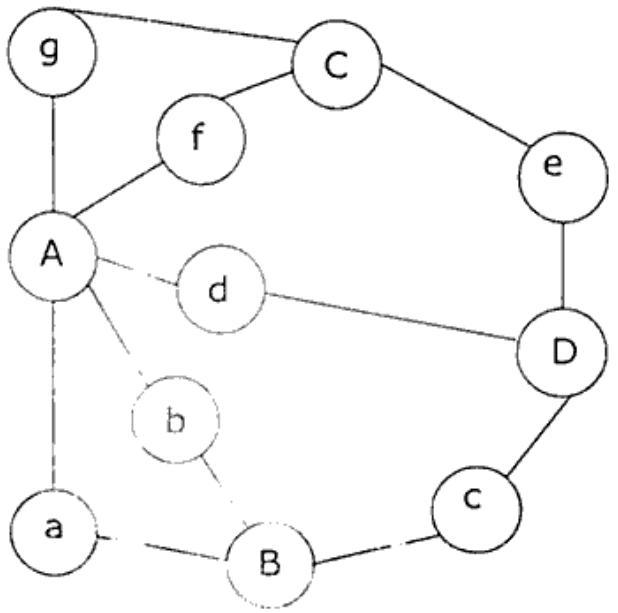
(b) Explain Push pop operation of a stack. 5

11. (a) Write an algorithm to concatenate two singly linked list. 7.5

(b) Classify the Hashing functions and explain each with an example. 7.5

https://www.ccsustudy.com

12. (a) Explain DFS and BFS traversal of the following graph. 10



(b) Explain the term garbage collection and compaction. 7.5

13. (a) Explain the Tower of Hanoi Problem in detail. 7.5

(b) Write short notes on

(a) AVL Tree 3

(b) Secondary indices 2

(c) Back tracking 2.5