

Total No. of Questions—8]

[Total No. of Printed Pages—3

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[5559]-208

S.E. (IT) (II Semester) EXAMINATION, 2019
DATA STRUCTURE AND FILES
(2015 PATTERN)

Time : 2 Hours

Maximum Marks : 50

N.B. :— (i) Answer *four* questions.

(ii) Neat diagrams must be drawn wherever necessary.

(iii) Figures to the right indicate full marks.

(iv) Assume suitable data, if necessary.

1. (a) If the values of A, B, C and D are 2, 3, 4 and 5 respectively, calculate the value of the following postfix expressions :

(i) $AB * C - D +$

(ii) $ABC + * D -$ [6]

(b) Construct binary tree from the preorder and inorder traversal.[6]

Preorder : J C B A D E F I G H

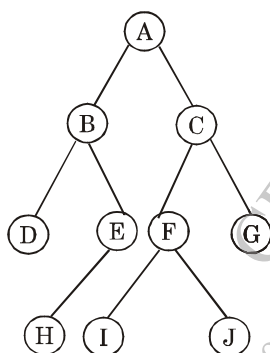
Inorder : A B C E D F J G I H

Or

2. (a) Convert the following expression from Infix to Postfix and Prefix. Make use of appropriate data structure : [6]

$2 * 3 / (2 - 1) + 5 * 3$

(b) Traverse a given binary Tree in Inorder, Preorder and Postorder : [6]

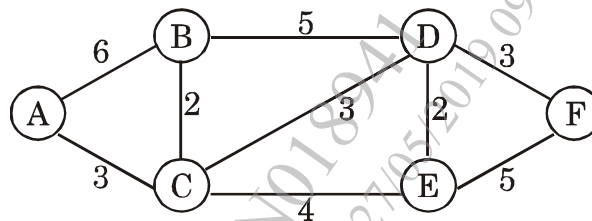


P.T.O.

3. (a) Draw the directed graph for the adjacency matrix representation given below : [6]

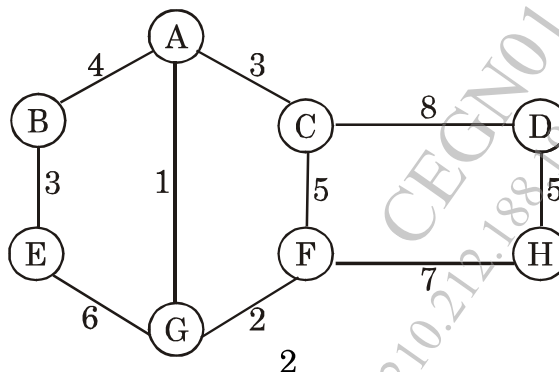
	A	B	C	D	E	F
A	0	3	4	0	2	1
B	0	0	2	0	0	3
C	0	0	0	2	6	1
D	2	6	1	0	1	2
E	0	0	0	0	0	3
F	0	0	0	0	0	0

- (b) Find the shortest path using Dijkstra algorithm between node A and node F : [6]



Or

4. (a) Define the following terms with respect to graph : [6]
- Path
 - Adjacent Vertices
 - Cycle
 - Loop
 - Degree of vertex
 - Connected graph.
- (b) Find minimum spanning tree using Kruskal's algorithm : [6]



5. (a) Create an AVL tree using the following data, show the balance factor : [8]

14, 23, 7, 10, 33, 56, 80, 66, 70

- (b) Write an algorithm to traverse inorder threaded binary tree in Inorder. [6]

Or

6. (a) Construct heap out of the following data read from the Keyboard : [8]

23, 7, 92, 6, 12, 14, 40, 44, 20, 21

- (b) Compare AVL tree and Red-Black, tree with different parameters. [6]

7. (a) What is file ? Explain different types of file organisations.[6]

- (b) Write C++ Pseudo code for delete operation on sequential file.[6]

Or

8. (a) Explain prototype of the following function in C++ with example : [8]

(i) seekg

(ii) seekp

(iii) tellg

(iv) tellp

- (b) Differentiate sequential and index sequential file. [4]