

B.Sc. (Honours) Examination 2018
Semester-II
Computer Science (Allied)
Course : BCSA-21
Module-A

Time : 3 Hours

Full Marks : 40

Questions are of value as indicated in the margin

Answer **any four** questions

1. a) Explain – (i) Static array, (ii) Dynamic array, (iii) linked list with suitable example. 3×3=9
b) Indicate the significance of header in a linked list. 1
 2. a) Explain with suitable example- 4×2=8
 - i. Single linear linked list,
 - ii. Single circular linked list,
 - iii. Double linear linked list,
 - iv. Double circular linked list.b) Indicate the steps to delete a node from a single linear linked list. 2
 3. a) Explain Double ended queue DEQUE with associated operation(s). 6
b) Compare and contrast the functionalities of stack and Queue. 4
 4. a) Convert the followings – 2×3=6
 - i. $a+b*c$ into corresponding postfix,
 - ii. $abc+*$ into corresponding infix,
 - iii. $abcd + - *$ into corresponding prefix.b) Determine the maximum and minimum height of a binary tree comprising n nodes. 4
 5. a) Explain – (i) Bipartite Graph, (ii) Tree, (iii) Cycle. 2×3=6
b) Justify the significance of (i) Adjacency matrix and (ii) Adjacency tree for representing a graph. 2×2=4
 6. Write short notes on (**any two**) : 5×2=10
 - a) Binary Search Tree,
 - b) Node Insertion in a Double linked list?
 - c) Balancing of a binary tree.
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