

B.Tech I Year II Semester (R15) Regular & Supplementary Examinations May/June 2019

DATA STRUCTURES

(Common to CSE & IT)

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) What are pointer arrays? Give an example.
 - (b) What is the difference between big-oh notation and little-oh notation?
 - (c) What are the basic operations that can be performed on stacks?
 - (d) Give any two operations of queues.
 - (e) Define a binary tree and give an example.
 - (f) List any four operations on binary tree.
 - (g) What is sorting by insertion?
 - (h) Differentiate sorting by insertion and sorting by selection.
 - (i) Derive the time complexity of sequential search.
 - (j) What is hashed list and write its significance?

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

- 2 Define single linked list and write a program for inserting and deleting from single linked list.
- OR**
- 3 What is circular linked list and illustrate it with appropriate example. Write procedures for insertion and deletion operations on circular linked list.

UNIT – II

- 4 Discuss application of queue and write a program on queue with linked list implementation.
- OR**
- 5 Discuss application of stack and write a program on stack with linked list implementation.

UNIT – III

- 6 Differentiate between heap tree and height balanced tree with suitable example.
- OR**
- 7 Define red black tree and discuss insert and delete operations on it with illustrations.

UNIT – IV

- 8 Write algorithm for heap sort and explain with an example.
- OR**
- 9 Write and explain algorithms for quick sort and shell sort.

UNIT – V

- 10 Define bucket hashing and explain it with an example. Also analyze it with an example.
- OR**
- 11 Write an algorithm for binary search. Show the working of your algorithm with an example.
