

**DATA STRUCTURES**

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 70

**PART – A**

(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) Which are the different asymptotic notations?
  - (b) Define singly linked list.
  - (c) What are the different operations on stack?
  - (d) What are the various different queue structures?
  - (e) What do you mean by binary search tree?
  - (f) Define graph and how does it is represented in computer memory.
  - (g) What is average case, best case and worst case complexity of bubble sort algorithm?
  - (h) How do we do choice of Pivot in Quick Sort?
  - (i) What is hash function? Also give features of good hash function.
  - (j) What are different collision resolution strategies?

**PART – B**

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

**UNIT – I**

- 2 What is an array? Also explain concept of multidimensional array & write a pseudo code for inserting into and deleting data from array.

**OR**

- 3 Compare sequential and linked organization? Which are the different primitive operations associated with linked list? Write a pseudo code to insert into Singly linked list.

**UNIT – II**

- 4 Describe all the stack operations as well as applications.

**OR**

- 5 Describe all the queue operations as well as applications.

**UNIT – III**

- 6 What is binary tree? What are the different binary tree traversal techniques?

**OR**

- 7 Describe shortest path algorithm with example.

**UNIT – IV**

- 8 What are the different types of sorting? Explain File sort in detail.

**OR**

- 9 What is sort stability and sort efficiency? Explain bubble sort with example.

**UNIT – V**

- 10 Which are the different methods of implementing hash function? Explain any two in detail.

**OR**

- 11 Describe open addressing and Chaining.

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