Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

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B.Sc.(IT) (2015 & Onward) (Sem.–3)

DATA STRUCTURES

Subject Code : BSIT-302

M.Code : 74060

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.**

SECTION-A

1. Answer briefly :

a) Give the names of linear data structure.

b) Give the names of non-linear data structure.

c) When is a binary search best applied?

d) What is a linked list?

e) List out different operations you can perform on tree.

f) How do you reference all the elements in a one-dimension array?

g) Write short note on multiply linked lists.

h) Explain application of linked list.

i) What is the complexity of quicksort algorithm?

j) In tree construction, which is the suitable efficient data structure

SECTION-B

2. What is average, best and worst case complexity? Define O notation of time complexity.

3. Write pseudo code to add node at the end in circular linked list. Explain doubly linked list with advantage and disadvantage of it.

4. a) What are the various steps in which the number 86 will be found by the Binary search?

   b) Suppose a sequence of numbers is given like :

      5, 10, 13, 19, 63, 69, 72, 86, 97, 2

      In how many steps the number 86 will be found in the linear search?

5. Explain operation of linked stack and linked queue. Write algorithm for push/pop operation on a linked stack.

6. What is the advantage of the heap over a stack? What is the minimum number of queues needed when implementing a priority queue?

7. Construct a Binary tree whose nodes are as under :

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

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

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.