MS – 367

II Semester B.A./B.Sc. Examination, May 2016
(CBCS) (Fresh + Repeaters) (2014-15 and Onwards)
COMPUTER SCIENCE – II
Data Structures

Time : 3 Hours Max. Marks : 70

Instruction : *Answer* ***all*** *Sections.*

SECTION – A

I. Answer **any 10** questions. **Each** question carries **2** marks. **(2×10=20)**

1) Define data structure. Mention its types.
2) What is abstract data type ? Explain.
3) Mention any 4 built in string functions.
4) Define time complexity.
5) What is searching ? Mention types of searching.
6) What are the components of linked list ?
7) What is Garbage collection ?
8) Write any two differences between stack and queue.
9) Write any two applications of queues.
10) Mention the types of graph traversals.
11) What is tree ? Mention any 2 applications of trees.
12) What is complete binary tree ?

SECTION – B

II. Answer **any 5** questions. **Each** question carries **10** marks. **(5×10=50)**

13) a) Explain linear and non-linear data structures with examples. **5**
b) Explain memory representation of arrays. **5**

P.T.O.

14) a) Compare selection sort and insertion sort. 5

b) Define recursion. Write a C-function to find factorial of a number using recursion. 5

15) a) Write a algorithm for creating a linked list. 5

b) Write a C-function to implement bubble sort. 5

16) a) Explain the operations performed on queue. 5

b) Write a note on various types of linked list. 5

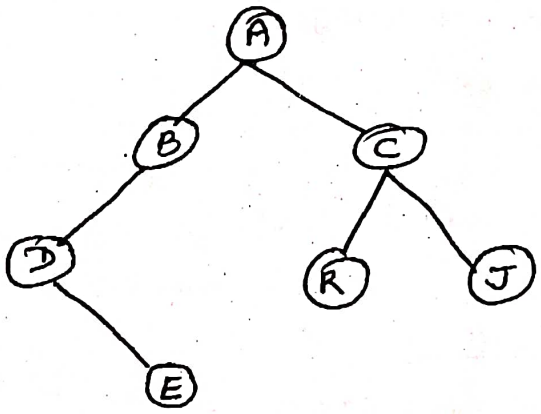
17) a) Write a function to insert a node into linked list at a given position. 5

b) Write a program for linear search. 5

18) Write a program to demonstrate the working of array implementation of stack. 10

19) a) Write an algorithm for creation of binary tree. 5

b) Write the preorder, inorder and post order traversals for the given binary tree. Explain with algorithm. 5



20) a) Explain breadth first search algorithm with an example. 5

b) Explain the representation of graph in memory. 5