



MS – 570

II Semester B.C.A. Degree Examination, May 2016
(F + R) (CBCS) (2014-15 and Onwards)
COMPUTER SCIENCE
BCA – 203 : Data Structures

Time : 3 Hours

Max. Marks : 70

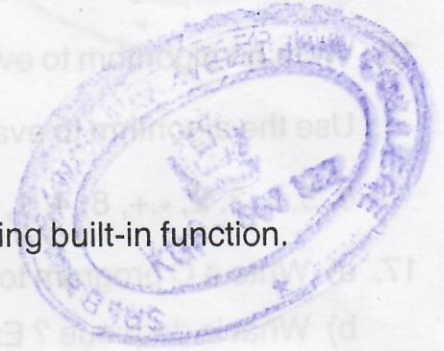
Instruction : Answer *all* Sections.

SECTION – A

Answer **any ten** questions. **Each** question carries **two** marks.

(10×2=20)

1. What is Abstract Data Type ?
2. What is time complexity ?
3. Write an algorithm to traverse linear arrays.
4. Write C function to find the length of string without using built-in function.
5. What is circularly linked list ?
6. Mention any two applications of linked list.
7. How is stack represented in memory ?
8. Define recursion.
9. What is priority queue ?
10. What is adjacency matrix ? Give example.
11. Define graph.
12. Mention the different ways of tree traversal.



P.T.O.



SECTION - B

Answer **any five** questions. **Each** question carries **ten** marks.

(5×10=50)

13. a) Explain various data structure operations performed on non-primitive data structures.
b) Write a C program to copy one string into another without using built-in functions.
14. a) Write a C program to implement selection sort.
b) Write an algorithm to delete an element from an array.
15. a) Explain various types of linked lists.
b) Write an algorithm to insert a node at the beginning of linked list.
16. Write an algorithm to evaluate a valid postfix expression.

Use the algorithm to evaluate the following postfix expression :

6, 5, *, 3, 2, *, +, 8, 4, 1, -

17. a) Write a C program to implement stack operations.
b) What is dequeue ? Explain.
18. a) Write an algorithm to insert an element into circular queue.
b) Explain queue overflow and underflow.
19. a) Explain sequential representation of graphs in memory.
b) Mention the types of graph traversal algorithms. Explain any one.
20. a) List the properties of binary tree.
b) Construct binary tree given inorder and postorder traversals.

Inorder : E A C K F H D B G

Postorder : E C K A H B G D F.

Also specify the pre-order traversal.
