SG – 625

II Semester B.C.A. Examination, September/October 2021
(CBCS Scheme) (Fresh + Repeaters)
(2014 – 15 and Onwards)
COMPUTER SCIENCE
BCA 203 : Data Structures

Time : 3 Hours Max. Marks : 70

Instructions : *1) Section – **A**, answer **any 10** questions.*
*2) Section – **B**, answer **any 5** questions.*

SECTION – A

Answer **any 10** questions, **each** question carries **2** marks. **(10×2=20)**

1. Define data structure. **2**
2. Mention different types of sorting techniques. **2**
3. Define linked list. **2**
4. What is a stack ? **2**
5. Write about the representation of a linked list. **2**
6. What is a sparse matrix ? **2**
7. What is binary tree ? **2**
8. Differentiate between non-terminal node and a leaf node. **2**
9. Define binary search tree. **2**
10. Mention any 2 applications of a linked list. **2**
11. Define a priority queue. **2**
12. What is directed graph ? Give an example. **2**

SECTION – B

Answer **any five** questions, **each** question carries **10** marks. **(5×10=50)**

13. a) Explain linear search method with an example. **6**
    b) Write an algorithm for selection sort. **4**

P.T.O.

14. a) What are the advantages of a linked list ? **4**

    b) Write a C program to implement insertion sort. **6**

15. a) Write a program to sort n elements using Bubble sort technique. **5**

    b) List the advantages and disadvantages of a binary search. **5**

16. a) List the applications of a data structure. **6**

    b) Write a C program to find the factorial of a number using recursion. **4**

17. Define a linked list. Explain different types of linked list with a neat diagram. **10**

18. Write a menu driven C program to implement stack operations. **10**

19. a) Define the following : **5**

    i) Graph

    ii) Edge

    iii) Vertex

    iv) Null graph

    v) Leaf node.

    b) Explain DFS method of graph traversal. **5**

20. a) Write a note on dynamic memory allocation. **5**

    b) Convert the following infix expression into its equivalent postfix.
    (a + b) * (m/n) + (x + y). **5**
