UNIVERSITY OF NORTH BENGAL
BCA Honours 3rd Semester Examination, 2023

CC5-BACHELOR OF COMPUTER APPLICATION (31)

DATA STRUCTURES

Time Allotted: 2 Hours   Full Marks: 40

The figures in the margin indicate full marks.

GROUP-A
Answer any *five* questions   1×5 = 5

1. What are data structures?
2. Write the stack underflow condition.
3. List the area of applications of data structures.
4. Which data structure is used for expression evaluation?
5. Write the postfix form of the expression:
   $a + b * c + (d * e)$
6. Write the difference between push and pop operations in a stack.
7. What is dynamic memory allocation?
8. What is sorting?

GROUP-B
Answer any *three* questions   5×3 = 15

9. Write the differences between array and linked list.
10. Explain Sparse Matrix and its types.
11. Explain circular linked list with an example.
12. What is a queue? How does it work?
13. What is recursion? Give example.

GROUP-C
Answer any *two* questions   10×2 = 20

14. Write an algorithm to insert in the beginning and delete a node in circular singly list from the end.
15. What is tree traversal? Explain any one non recursive tree traversal of Binary tree.
16. Explain Bubble sort with an example and also write its advantages and disadvantages.
17. Discuss stack. How it is implemented using array? What is the disadvantage of Array representation of stack?

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