UNIVERSITY OF NORTH BENGAL

B.Sc. General Part-I Examination, 2020

COMPUTER SCIENCE

PAPER-II

Time Allotted: 1 Hour   Full Marks: 25

The figures in the margin indicate full marks.

Answer Question No. 1 and any *one* from the rest

1.   Answer any *two* questions from the following: $2\frac{1}{2} \times 2=5$

   (a) What is the difference between file structure and storage structure? $2\frac{1}{2}$

   (b) What is a Stack? What are the operations that can be performed on a stack? $1+1\frac{1}{2}$

   (c) Write the steps involved in the insertion and deletion of an element in the stack. $2\frac{1}{2}$

2. (a) What is a postfix expression? Write the postfix form of the expression: 2+2
        (A + B) * (C – D).

   (b) How the elements of a 2D array are stored in the memory? Calculate the address   2+3
       of a random element present in a 2D array, given base address as BA.

   (c) What are the advantages of Linked List over an array? Write the syntax in C to   3+3
       create a node in the singly linked list.

   (d) Explain doubly linked list with the help of an example.   5

3. (a) Write the C program to insert a node in circular singly linked list at the beginning.   10

   (b) Define the queue data structure. List some applications of queue data structure.   2+3

   (c) Define the tree data structure. List the types of tree.   2+3

4. (a) Write an algorithm to find an element from a sorted list using binary search   10
       algorithm. Explain with the help of an example.

   (b) Explain insertion sort with the help of an example.   10

5. (a) What are the advantages of Binary search over linear search?   2

   (b) What are records?   2

   (c) What is dequeue?   2

   (d) What are the scenarios in which an element can be inserted into the circular   2
       queue?

   (e) What is stack overflow? Give an example.   2

   (f) Discuss different data types giving suitable examples.   5

   (g) Explain hashing.   5

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