NP – 163

I Semester B.C.A. Degree Examination, May 2022
(NEP – 2021-22 and Onwards)
COMPUTER SCIENCE
Paper – 1.2 : Problem Solving Techniques

Time : 2½ Hours Max. Marks : 60

Instruction : *Answer* ***any four*** *questions from* ***each*** *Part.*

PART – A

Answer **any 4** questions. **Each** question carries **2** marks. **(4×2=8)**

1. Define Algorithm.
2. Define Token with an example.
3. Write any two rules for Identifiers.
4. Define Binary Search.
5. What is sorting ? List any two sorting techniques.
6. What is an array ? Give the syntax.

PART – B

Answer **any 4** questions. **Each** question carries **5** marks. **(4×5=20)**

7. Write an algorithm to exchange the values of two variables.
8. Write a note on break and continue with an example.
9. Illustrate the declaration and initialization of pointers with an example.
10. Write a C program to remove the duplicate entries in a single dimensional array.
11. How do find the smallest divisor of an integer ?
12. Write an algorithm to perform hash search on the given set of elements.

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PART – C

Answer **any 4** questions. **Each** question carries **8** marks. **(4×8=32)**

13. a) Explain the various Asymptotic Notations with their significance. **6**

    b) What is pattern searching ? **2**

14. a) Explain the structure of a C program. **4**

    b) Differentiate between if and if else. **4**

15. Write a C program to find the roots of the Quadratic Equation. **8**

16. a) Write a 'C' program to demonstrate the following string operations. **4**

    i) strepy () ii) strcat() iii) Strlen() iv) strrer()

    b) Write a short note on hash search. **4**

17. a) Write a C program to read 2 × 2 matrices and perform Addition and Subtraction operations on the matrices. **6**

    b) What do you mean by two way merge ? **2**

18. a) Perform the Bubble sort operation on the following elements 23, 5, 13, 65, 8 to arrange them in ascending order. **6**

    b) Write any two application of text line editing. **2**

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Paper – 1.3 : Data Structures

Time : 2½ Hours Max. Marks : 60

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

PART – A

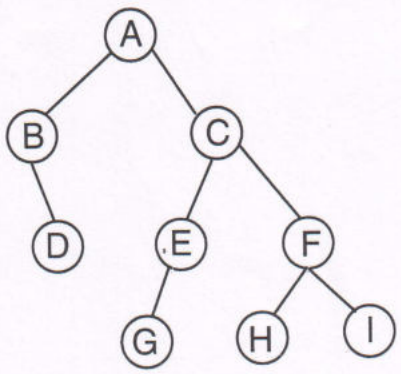
I. Answer **any 4** of the following : **(4×2=8)**

1) How to measure the complexity of an algorithm ?
2) What is an Abstract Data type ? Give an example.
3) Explain overflow and underflow conditions in stack.
4) What is a Binary Search Tree ? Give an example.
5) Mention any two types of Graphs.
6) What do you mean by Chaining in Collision Resolution ?

PART – B

II. Answer **any 4** of the following : **(4×5=20)**

7) Define sparse matrix. Write a C program to check whether given matrix is SPARSE or NOT.
8) Write an algorithm for ENQUEUE and DEQUEUE operations.
9) What is Recursion ? Write a program to print Fibonacci series using Recursive function.
10) Write Pre-order, In-order, Post-order, Traversal for the given Tree.



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