BCA (Sem–IV) – Design

Analysis of Algorithm (401) Core-VIII

2022

Time : 3 hours

Full Marks : 70

Candidates are required to give their answers

in their own words as far as practicable.

The figures in the margin indicate full marks.

*Answer **all** sections as directed.*

Section–A

Objective type Questions

1. Choose the correct alternative for each of the following questions : $2 \times 10 = 20$

(a) First Statement : Algorithm is

independent from any programming languages.

Second Statement: A pseudo code describes the high love abstract process.

(i) Frist Statement is correct second is incorrect.

(ii) Second statement is correct; first is incorrect.

(iii) Both statements are correct.

(iv) Both statements are incorrect.

(b) There are ___ important characteristics of an algorithm can have.

(i) 3

(ii) 2

(iii) 5

(iv) 4

(c) 'read(a)' in any algorithm means :

(i) Reading the variable 'a'

(ii) Input a value and store in a variable named 'a'

(iii) Reading the value from variable 'a'.

(iv) None of those

(d) Algorithm is case sensitive ?

(i) Always

(ii) Sometimes

(iii) Never

(iv) None of these

(e) Binary Search follows the following :

(i) Divide and conquer

(ii) Greedy algorithm

(iii) Dynanic programming

(iv) None of these.

(f) Recursive takes ____ than iterative.

    (i) More Time

    (ii) More memory

    (iii) Both (a) & (b)

    (iv) None of these

(g) Which algorithm uses memorization ?

    (i) Dynamic Programming

    (ii) Greedy Algorithm

    (iii) Divide and conquer

    (iv) None of these

(h) ____ sort is a sarting technique that sorts the elements by first grouping the individual digits of same place value.

    (i) Heap

    (ii) Marge

    (iii) Radix

    (iv) None of these

(i) Travel salesman problem can be best solved by :

    (i) Greedy approach

    (ii) Dynamic Algorithm

    (iii) Divide and Conquer

    (iv) None of these

(j) STPSET is used in :

    (i) Kruskal's algorithm

    (ii) Dijkstra's Algorithm

    (iii) Prim's algorithm

    (iv) None of these.

Section—B

Short Answer type Questions

Answer any **four** questions of the following :

                             4×5=20

2. Differentiate algorithm and pseudo code.

3. Differentiate between Iteration and recursion technique.

4. Write an algorithm for Bubble sort.

5. Write an algorithm for Binary search.

6. Define divide and conquer. How do we implement it in solving big problems ?

7. What are the features important for "correctness of an algorithm" ?

8. Create a decision tree for a student registration process.

9. Explain all three steps involved in divide and conquer.

Section–C

Long Answer type Questions

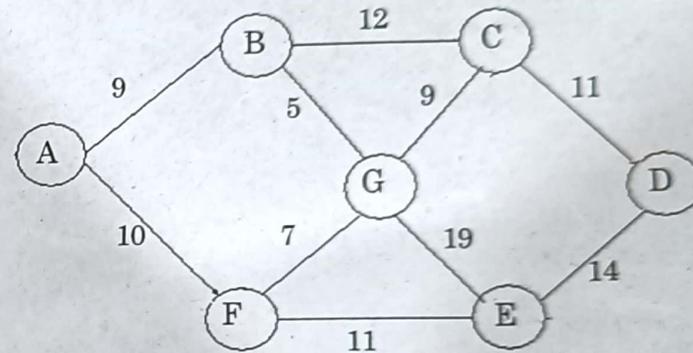Answer any **two** questions of the following :

$$15 \times 2 = 30$$

10. With the help of counting coin problems, explain how dynamic technique is better than greedy approach.

11. Find out MSI using Krushkal's algorithm.

12. Through an example show the working of Dijkstra's algorithm for shortest path routing.

13. Differetiate between BFS and DFS.

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