



BRAINWARE UNIVERSITY

Term End Examination 2023

Programme – Dip.CSE-2018/Dip.CSE-2019/Dip.CSE-2020/Dip.CSE-2021

Course Name – Data Structures & Algorithm

Course Code - DCSE203

(Semester II)

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Brainware University
Barasat, Kolkata -700125

Time : 2:30 Hours

Full Marks : 60

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) Two main measures for the efficiency of an algorithm are defined as
- | | |
|-------------------------|----------------------------|
| a) Processor and memory | b) Complexity and capacity |
| c) Time and space | d) Data and space |
- (ii) Select which of the following data structures is linear data structure?
- | | |
|-----------|-----------|
| a) Trees | b) Graphs |
| c) Arrays | d) None |
- (iii) Identify the following problems that is NOT solved using dynamic programming.
- | | |
|--------------------------|--|
| a) 0/1 knapsack problem | b) Matrix chain multiplication problem |
| c) Edit distance problem | d) Fractional knapsack problem |
- (iv) If push(y) and pop(y) are two functions and both the functions return y then show what will return for pop(pop(push(2)))
- | | |
|------|-------|
| a) 2 | b) 1 |
| c) 0 | d) -1 |
- (v) Choose the correct option for sparse matrix?
- | | |
|--|--|
| a) A matrix where most of the entries are non-zero | b) A matrix where only a few entries are non-zero. |
| c) A matrix where all the entries are non-zero. | d) None of the these |
- (vi) Select Which of the following is not the type of queue?
- | | |
|-------------------|-----------------------|
| a) Ordinary queue | b) Single ended queue |
| c) Circular queue | d) Priority queue |
- (vii) Process of inserting an element in stack is called
- | | |
|---------------|---------|
| a) Create | b) Push |
| c) Evaluation | d) Pop |

11. Identify an algorithm to insert the data into a Stack using Linked List (5)
12. Suppose the following ten numbers are inserted in order into an empty binary search tree T: (5)
99, 88, 77, 44, 33, 22, 99, 88, 11, 33 Deduce the tree T by describing each step of insertion.

OR

- Sort the following ten numbers using Heap Sort algorithm: 51, 71, 31, 61, 41, 11, 21, 81, 91, (5)
11. Explain all the necessary steps.

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