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SARDAR PATEL UNIVERSITY
T.Y. B.Sc. EXAMINATION, SEM – V
INFORMATION TECHNOLOGY
US05CINT02: Data and File Structure

Date: 24/10/2018
Wednesday

Time: 10:00am To 01:00pm

Total Marks: 70

Q.1 Multiple Choice Questions.

10

1. An array is a _____ data structure.
A. Unordered B. Linear C. Non-composite D. Heterogeneous
2. The number of elements in an array is called the _____ of the array.
A. Size B. Type C. Base D. Index
3. Tree is a _____ data structure.
A. Linear B. Non-linear C. Variable D. Non-subscript
4. The number of sub tree of a node in a tree is called _____ of a node.
A. Degree B. Level C. Height D. Index
5. _____ is a rank of hierarchy of a tree
A. Degree B. Level C. Height D. Index
6. K-way merging is known as _____.
A. Simple merge B. Selection sort
C. Multiple merging D. Binary merging
7. The process of finding the data from its data structure is called _____.
A. Searching B. Sorting C. Deletion D. None of above
8. In selection sort algorithm, for i^{th} pass of the sort, _____ comparisons are required.
A. $n + i$ B. $n - i$ C. $n + 1$ D. $n - 1$
9. Record is also known as group or _____.
A. Item B. Segment C. Entity D. None of these
10. CDC stands for _____.
A. Control Data Cycle B. Control Data Centre
C. Control Data Corporation D. None of these

Q.2 Answer the following questions in short. (Any 10)

20

- 1) What is Array? List out application of array.
- 2) What is composite data structure?
- 3) Define Row major representation of two dimension array.
- 4) Define Node and Branch.
- 5) What is Binary Tree?
- 6) Define doubly link list.
- 7) Define Binary Search.
- 8) Define bubble sort.
- 9) List the applications of Searching.
- 10) Define Address Space and Key Space.
- 11) What do you mean by file organization? Why it is Required?
- 12) Define Bucket Capacity.

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(P.T.O.)

- Q.3 What is Queue? Write algorithm for Insert and Delete operations on Circular Queue. 10
- OR
- Q.3 What is Stack? Write algorithms for PUSH(), POP(), PEEP() and CHANGE() operations on stack. 10
- Q.4 A. Write Algorithm for insert element in singly link list. 05
 B. Explain insertion operation in lexically ordered binary tree. 05
- OR
- Q.4 C. Write Algorithm to Insert element in Doubly link list. 05
 D. Write algorithm for Inorder traversal of binary tree. 05
- Q.5 A. Write down the algorithm of selection sort. 05
 B. Write down the algorithm of Binary Search. 05
- OR
- Q.5 C. Write down the algorithm of bubble sort. 05
 D. Define the all step of merge sort of following data? 05
 List-1 9, 15, 23, 34, 45
 List-2 12, 27, 32
- Q.6 A. Write a detail note on processing of Direct file. 05
 B. Write a short note on Multiple buffering. 05
- OR
- Q.6 C. Write a short note on Single buffering. 05
 D. Write a detail note on processing of index sequential file 05

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