No. of Printed Pages: 2

SARDAR PATEL UNIVERSITY
External Examination
B. C. A. – Third Semester
US03CBCA03: Advanced Data and File Structures
20ᵗʰ November, 2013

Time: 2.30 pm to 5.30 pm   Max. Marks – 70

Q-1   MCQ   [10]

1) The node which is at the end and which does not have any child is called

_____ .

   a) Branch   b) Parent   c) Root   d) Leaf

2) _____ is a set of disjoint trees.

   a) Path   b) Directed tree   c) Forest   d) Height

3) A node whose out degree is 0 is called _____ .

   a) Source node   b) Self loop   c) Sink node   d) Single node

4) A vertex is _____ if there is no edge connected from any other vertex

to the vertex.

   a) Isolated   b) Self   c) Single   d) Cycle

5) A graph which has either self loop or parallel edges or both is

called_____ .

   a) Multi graph   b) Multiple graph

   c) Double graph   d) Parallel graph

6) K-way merging is known as _____ .

   a) Simple merge   b) Multiple merging

   c) Selection sort   d) Binary merging

7) _____ technique requires an ordered table to search a

particular record in the table.

   a) Binary search   b) Sequential search c) Sorting   d) None of these

8) The lowest level of index is _____ .

   a) Track index   b) Index area

   c) Prime index   d) Master index

9) Record is also known as group or _____ .

   a) Item   b) Segment   c) Entity   d) None of these

10) The collection of files is known as _____ .

   a) Data file   b) File   c) Database   d) None of these

[P.T.O]

Q-2 Write down the answer of following short questions. (Any Ten) [20]

1) Suppose that each element requires 4 word (byte), the base address of array a[20] is 350 and lower bound of the array is 0. Then find the address of a[15].
2) Define tree with an example.
3) List 2 applications of an array.
4) Define Directed and Undirected Graph.
5) Draw the Binary Tree for ((A-B)*C)+(E/F).
6) What is loop and cycle of a Graph?
7) List the applications of sorting.
8) Difference between Searching and sorting.
9) Define searching. Also list the searching techniques.
10) Define Bucket Capacity.
11) Explain in brief prime area.
12) What do you mean by file organization? Why it is Required?

Q-3 A) Explain Sparse Matrix in detail. [05]

B) Assume that the base address of the two dimensional array a[10][10] is 450, each element requires 4 byte (word). Find the address of the element a[3][2] using Row-major order and Column-major order. [05]

OR

Q-3 A) List the representation of 2-D array in the memory. Explain any one of them with address calculation formula. [05]

B) Define array. Explain 1-D array with declaration and initialization. [05]

Q-4 A) List various methods of memory representation for Binary tree. Explain any one of them. [06]

B) Write an algorithm for Inorder traversal. [04]

OR

Q-4 A) What is traversal? Write down an algorithm for Postorder traversal. [06]

B) Draw the binary tree for following expression: [04]

Inorder	D	B	F	E	G	A	H	I	C	J
Postorder	D	F	G	E	B	I	H	J	C	A

Q-5 A) Give a dry run for Bubble sort with following data: 10,80,60,5,70,40 [05]

B) Write an algorithm of Selection sort. [05]

OR

Q-5 A) Write down the algorithm of Bubble sort. [05]

B) Write down the algorithm of Sequential search. [05]

Q-6 A) Explain in detail the structure of Sequential File. [10]

OR

Q-6 A) Explain in detail the structure of Index Sequential File. [10]

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