(33) No. of Printed Pages: 2

SARDAR PATEL UNIVERSITY
T.Y.B.Sc : SEMESTER – V
INFORMATION TECHNOLOGY
US05CINT02 : DATA AND FIE STRUCTURE

Date : 15-11-2013, Friday Time : 10:30am to 01:30pm Max.Marks : 70

Q.1 Multiple choice of Question: 10

[1] An array is a _____ data structure.
(a) Non-composite (b) Non- Linear
(c) Ordered (d) Heterogeneous

[2] All elements of array are stored in_____ location of computer memory.
(a) Non-contiguous (b) Limited
(c) Contiguous (d) Infinite.

[3] The number of elements in an array is called the _____ of the array.
(a) Size (b) Base
(c) Type (d) Index

[4] A binary tree has at most _____child.
(a) Two (b) Three
(c) One (d) None of these

[5] In preorder traversal of a binary tree, root node is always located at _____ position.
(a) Second last (b) First
(c) Second (d) Last

[6] Maximum number of nodes possible in a binary tree of height h is_____.
(a) 2 ^ (h + 1) (b) 2 ^ h - 1
(c) 2 ^ h + 1 (d) 2 ^ (h - 1)

[7] _____is the operation of arranging the records of a table into some sequential order according to an ordering criterion.
(a) Searching (b) Inserting
(c) Sorting (d) Updating

[8] In selection sort algorithm, for ith pass of the sort, _____ comparisons are required.
(a) n + i (b) n - i
(c) n + 1 (d) n - 1

[9] A _____ is a collection of information items about a particular entity.
(a) record (b) database
(c) entity (d) None of these

[10] _____ is a unit of meaningful information about an entity.
(a) Record (b) Entity
(c) Item (d) None of these

Q.2 Attempt any 10 questions: 20

[1] What is Composite data structure
[2] What is Data Structure?
[3] Write difference between Linear and Non-Linear data structure
[4] What is Link list?
[5] List out application of Link list.
[6] Define : Node and Branch.
[7] Define sorting. Also list the sorting techniques.
[8] Define bubble sort.
[9] Difference between Searching and sorting.
[10] Define : Record, Item
[11] Define: Key, Sequence Key
[12] Write down the syntax and purpose of open statement for update mode.

P.T.O

Q.3	[A] What is Array? Write note on storage Representation of array.	5
	[B] Write Algorithm for PEEP( ) and CHANGE( ) operations on stack	5
	OR	
Q.3	[A] Explain Characteristics of algorithm for data structure	5
	[B] Write Algorithm for Insert and Delete operations on Queue.	5
Q.4	Write an algorithm for insert and delete operations in Doubly link list	10
	OR	
Q.4	[A] Explain Deletion operation in lexically ordered binary tree.	5
	[B] Explain linked representation of a binary tree.	5
Q.5	What is searching? List and explain searching techniques with algorithms.	10
	OR	
Q.5	[A] Write down the algorithm of selection sort.	5
	[B] Write down the algorithm of merge sort.	5
Q.6	Write a detail note on structure of Direct files.	10
	OR	
Q.6	Explain in detail the structure of index sequential File.	10

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