Exam.Code:0029
Sub. Code: 0932

2012
Bachelor of Computer Application
Third Semester
BCA-16-305: Data Structures

Time allowed: 3 Hours

Max. Marks: 65

NOTE: *Attempt five questions in all, including Question No. 9 (Unit-E) which is compulsory and selecting one question each from Unit A-D.*

x-x-x

Unit-A

1 a) Define Data structures. Explain basic data structures with suitable examples. (7)
b) Describe complexity of algorithm? Explain space and time complexity trade-off. (6)

2 a) Explain representation of one and two dimensional arrays in memory? (5)
b) What are the various operations of arrays? Exemplify each. (8)

Unit-B

3 a) Write an algorithm to search an element from a doubly linked list. (7)
b) What is Dequeue? Write its algorithm. (6)

4 a) What is circular linked list? Write an algorithm to search in circular linked list. (7)
b) Write various applications of queue. (6)

Unit-C

5 a) Write an algorithm to insert and search from a binary search tree. (7)
b) Discuss various traversal techniques for Graphs. (6)

6 a) How tress are represented in memory. (6)
b) Explain pre order and post order traversal technique in detail. (7)

Unit-D

7 a) What is Binary Search? How is it different from Linear Search? (6)
b) How does selection sort works? Write its algorithm with a suitable example. (7)

8 a) What is bubble sort? Write its algorithm and explain with suitable example. (7)
b) Write an algorithm for Merge Sort. (6)

P.T.O.

UNIT - E

9	i) What is space and time complexity trade-off ?	(2)
	ii) Differentiate between linear and non-linear data structures ?	(2)
	iii) What are the advantages of linked list over arrays?	(2)
	iv) Define garbage collection?	(1)
	v) Differentiate between BFS and DFS traversal techniques.	(2)
	vi) Calculate the complexity of linear search algorithm?	(2)
	vii) Write the complexities of quick sort and merge sort? Compare.	(2)

x-x-x