

Thapar Institute of Engineering & Technology, Patiala
Computer Science & Engineering Department

End Semester special Test

Course Code : CS-048

Date : 14-12-2006

Course Name : Data Structures & IT

Time Allowed : 3 Hr.

Instructor : Rinkle Aggarwal

Max. Marks : 100

Q 1,	What do you mean by an operating system? Explain the functions performed by an operating system.	(10)
Q 2. a)	Define Graph. Discuss the various memory representations techniques used for graph with the help of an example.	(8)
b)	Write down the advantages and disadvantages of doubly linked list.	(6)
Q 3. a)	Differentiate between Static and Dynamic Contiguous Partitioned memory allocation schemes.	(8)
b)	Apply the insertion sort on the following sequence of nodes. 8 5 7 3 2 1 6 4 9	(8)
Q 4. a)	Explain the seven layered architecture of ISO OSI Reference model with the help of a diagram.	(10)
Q 5. a)	Design an extended binary tree from the following sequence of Nodes and find out the minimum weighted path length. 12 43 36 51 17 26 13 15 14 18 34	(8)
b)	Distinguish between BFS and DFS.	(4)
Q 6.a)	Develop a max heap from the following sequence of nodes. 10 36 12 18 54 50 73 51 43 Delete one node from the above heap tree.	(8)
b)	Convert the following infix expression into the postfix expression. $a + (b * c - (d / e \uparrow f) * g) * h$	(8)
Q 7.	Develop a BST by inserting nodes from the following sequence one by one. 62 32 22 57 37 35 47 42 52 72 92 82 97 Perform the following operations on the above resulting tree independently. (i) Node 32 is deleted (ii) Node 72 is deleted (iii) Node 57 is deleted	(10)
Q8.	What do you mean by a network. Explain the various types of computer networks. Also discuss the advantages and disadvantages of networking.	(12)