Sem II ~~OS~~ 18/5/15
DS

QP Code : 19482

(REVISED COURSE)

(3 Hours) **Total Marks:80**

N.B. (1) Question No. 1 is compulsory.

(2) Attempt **any four** out of remaining **six** questions.

(3) Figures to right indicate full marks.

Q.1 a Differentiate between following: 10
I. Singly linked list and doubly linked list
II. Sequential search and hash list search

b Given a set of symbols & corresponding frequency table as below. Explain the steps to find Huffman code for each of character 10

Symbol	A	B	C	D	E	F	G	H	I	J
Frequency	7	2	2	3	11	2	2	6	6	1

Q.2 a Write algorithms to implement enqueue and dequeue in a circular queue. 08

b What is binary tree? Given the following traversals reconstruct the binary tree. 07
Inorder: F C E A B H D G
Postorder: F E C H G D B A

Q.3 a Define stack. Explain any two stack applications with example. 08

b Define max heap. Create a valid max heap using following: 07
16,12,15,53,81,27,30,2,50,92,6

Q.4 a Define binary search tree. Write an algorithm to 08
i) Insert a node (without recursion)
ii) Search the element

b Define hash list. Using midsquare method and key offset, store the keys shown below in hashing list. (listsize=13). Calculate load factor. 07
325, 568, 78, 55, 111, 121, 65

Q.5 a Write following algorithms for singly linked list: 08
i. Delete a node
ii. Append two linked lists

b Draw the B tree of order 3 by inserting following data: 07
98,24,6,7,11,8,22,4,5,16,19,20,78

Q.6 a Explain threaded binary tree. 08

PTO

DP-Con. : 8726-15.

	b	Define expression tree. Consider following infix expression. Draw the expression tree and find prefix and postfix expressions: (C+D+A*B)*(E+F)	07
Q.7	a	Consider following list and implement radix sort, show the tracing: 455, 135, 346, 409, 567, 698, 123, 582	07
	b	Write short notes : : (Any two)	08
		i. Graph Storage Structures	
		ii. Clustering	
		iii. Doubly linked list	

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