

S.E Comp
24

Data structure

2015706

[REVISED COURSE]

CON/1721-06.

TV-7968

(3 Hours)

[Total Marks : 100

- N.B. : 1) Question number 1 is compulsory.
2) Attempt any four questions out of remaining six questions.
3) Assumptions made should be clearly stated.
4) Figures to the right indicate full marks.
5) Assume suitable data wherever required but justify the same.

Q. No.1 a) Write a program to creat 'STACK' Abstract Data Type using linked list (10)
implementation. ADT should support the following operations.
(i) createstack (ii)pushstack (iii) pushstack (iv) destioystac
b)What are the different method of ' File I/O' in 'C'language? What different (10)
library functions are supported by 'C' language to do this?

Q.No.2 a) How do you represent arithmetic expression using binary tree ? Write (10)
a C function ' evalbintree' that accept a pointer to such tree and returns
value of the expression represented by the tree.
b) Write a program to traverse a nonempty binary tree in inorder, preorder (10)
and postorder.

Q. No.3 a) Give psudocode for Huffman algorithm and apply the Huffman (10)
Encoding method for following sentence' MAHARASHTRA'
b) Write a program to creat 'QUEUE' Abstract Data Type using array (10)
implementation. QUEUE ADT should support the following operations.
(i)create queue (ii)Insert into queue (iii) delete from queue
(iv) destroyqueue

Q. No.4 a) Write a program to implement ' Towers of Hanoi 'problem. (08)
b)(i)Develop an algorithm to delete a node from Binary search tree . (08)
(ii) Write a notes on ' Priority queue'. Explain with example . (04)

Q.No.5 a) Given a 'PREFIX' expression write a program to convert it into (10)
'POSTFIX' form.
b) write notes on the following. (10)
(i) Array implementation of linked list.
(ii)Game trees.

Q. No.6 a) Discuss recursion in C with suitable examples. (08)
b) (i)Write detailed notes on ' Threaded Binary tree' (08)
(ii) Define the following with examples. (04)
i) Strictly binary tree ii) Complete Binary tree

Q. No.7 a) Discuss the different ways of representing the binary tree. How would (08)
you choose the representation?
b) Write short notes on any two (12)
i) Tree represented list.
ii) Unions, strings and Macro in 'C' language.
iii)Dynamic memory and pointers in 'C' language.