

DSU QUESTION BANK (17330)(I&II shift)

CH-1

- Q.1) What is data structure? Why do we need data structure?(4m)
- Q.2) Describe big 'O' notation used in algorithm.(3m)
- Q.3) Explain different approaches to design an algorithm.3m)
- Q.4) Define primitive data structure. Give 4 operations of data structure.(4m)
- Q.5) State different types of data types.(3m)
- Q.6) Define Data Structure? Enlist any two types of non-linear data structures along with example.(4m)
- Q.7) Explain time and space complexity of an algorithm.(4m)
- Q.8) Give classification of Data Structure.(4m)

CH-2

- Q.1) Write a program to implement linear search.(3m)
- Q.2) Write a program to implement bubble sort.(4m)
- Q.3) Write a program to implement selection sort.(4m)
- Q.4) Differentiate between linear and binary search.(3m)
- Q.5) Find the position of element 29 using binary search method in array.(4m)
- A={2,3,5,11,17,21,29,43}
- Q.6) Arrange the given elements in ascending order using radix sort.(4m)
- A=361,12,527,143,9,768,348

Q.7) Arrange the given elements in the ascending order using merge sort.(4m)

A=15,84,62,08,41,47,33,18,51,32

Q.8) Arrange the given elements in the ascending order in quick sort.(4m)

A=3,12,5,19,1,17

Q.9) Arrange the given elements in the ascending order using insertion sort.(4m)

A=77,33,44,11,88,22,66,55

CH-3

Q.1) Define the term 'overflow' and 'underflow' with respect to stack.(3m)

Q.2) State the principle of stack with basic operations.(4m)

Q.3) Write an algorithm for 'push' operation.(3m)

Q.4) Translate the given infix expression to postfix expression using stack.(4m)

$((A+B)*D)^{(E-F)}$

Q.5) Evaluate following postfix expression.(4m)

A:6,2,3,+,-,3,8,2,+,+,* ,2,^,3,+

Q.6) Write a program to find the factorial of a given number using recursion.(4m)

Q.7) Convert following expression into prefix expression.(4m)

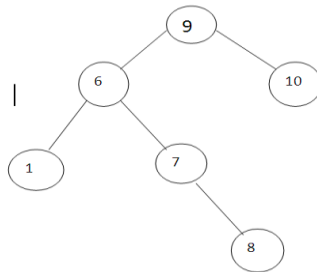
$(A+B)*C-D/E*(F/G)$

Q.8) What is a recursion?(3m)

- a) Distinguish between stack and queue.
- b) Construct a binary search tree for the following data:
10, 3, 15, 22, 6, 45, 65, 23, 78, 34, 5
- c) What is Hashing? Give its significance.
- d) Sort the following numbers in ascending order using radix sort:
14, 166, 74, 22, 36, 41, 59, 64, 54

- a) Explain types of binary tree.
- b) Explain insertion and deletion operation on Queue
- c) Explain different methods used to evaluate hash function.

- a) Perform In-order, pre-order and post-order traversal on the following binary tree



- b) Explain types of queue
- c) Write a program for binary search.