



DAYANANDA SAGAR ACADEMY OF TECHNOLOGY AND MANAGEMENT
DEPARTMENT OF COMPUTER SCIENCE

ASSIGNMENT 2

SUBJECT: DATA STRUCTURES WITH C

1. For the given sparse matrix and its transpose, give the triplet representation using one dimensional array. A is the given sparse matrix, b will be its transpose. Write a C function for the same? **(10M) Dec2011**

a=

15	0	0	22	0	-15
0	11	3	0	0	0
0	0	0	-6	0	0
0	0	0	0	0	0
9	0	0	0	0	0
0	0	28	0	0	0

2. Write C function for i) Insertion ii) Deletion iii) Display with respect to circular queue.

(08 M) July 2011, Dec 2010, June 2009

- 3(a) For the given circular queue shown in figure 5(a), write the values of front and rear in the table after each specified operation is performed. Queue full/empty conditions must be considered. 0-7 indicates the array indices. **(04 M) Dec 2011**

Operation	Rear	Front
Insert 0		
Insert 10		
Insert 15		
Delete		

Figure 5(a)

- 3(b) What is system stack? How the control transferred to or from the function with the help of activation record? **(06 M) Jan 2013**

- 4(a). Explain with an example advantages of circular queue over an linear queue.

(5M) June 12, Dec20 10

- 4(b) Write a C program to simulate the working of linear queue. Provide the following operations. i)insert ii)delete iii)display **(5 M) Jan 2010**

- 5(a) Write a C program to implement multiple stacks using 1 D array?

(5 M) Dec 2010

- (b) Write an ADT for queues with example? **(5M) June20 12**
6. Write a C program to implement queues using dynamic allocation? **(10 M) Dec 2010**
7. Write a C program to implement the inset and delete operations on a queue using linked list.
(10M) June 2012, Dec 2010
8. Write routines in C to perform the following operations in dynamic single linked list; i) To insert X into its proper position within the list; ii) To delete all nodes whose into field contains the value of X. **(10 M) June2012**
- 9(a) What is a linked list? Compare static and dynamic implementation of linked list in c. **(04 M) June20 12**
- (b) Write a C function to add 2 polynomials using linked list representation. Explain with suitable example. **(06 M) June 2012**
10. What are advantages of doubly linked list over single linked list? Write C routines to perform the following operations on doubly linked list; i)To delete node pointed to by P ii)To insert node to the right of P. **(10M) June 2012 July 2011**
- 11(a) What are the advantages and disadvantages of representing a stack or queue by a linked list? **(04 M) Jan 2010**
- (b) Explain the different types of linked list with diagrams? **(06 M) June 2013**
12. Write a C program to implement the inset a node to the list at the front and delete a node from front end of doubly linked list. Assume that first and last are external pointers to the first and last nodes of a doubly linked list **(10 Marks) Jan 2010, July 2009**

