

B.Sc. (With Credits)-Regular-Semester 2012 Sem IV
B.Sc.24141-Computer Science-I (Data Structures) Paper-I

P. Pages : 1

Time : Three Hours



GUG/S/16/5600

Max. Marks : 50

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- Notes :
1. All questions are compulsory and carry equal marks.
 2. Draw neat and labeled diagram wherever necessary.
 3. Avoid vague answers.

1. Either:

- a) Define data structures and explain the fundamentals of data structures. 5
- b) Discuss the memory representation of 1-Dimension array with an example. 5

OR

- c) Write an algorithm to sort the given elements of an array using Bubble sort method. 5
- d) Explain the concept of merging with suitable example. 5

2. Either:

- a) Write an algorithm to insert an element in stack and display the topmost element of stack. 5
- b) Explain the various representations of queue. 5

OR

- c) Write an algorithm for evaluation of postfix expression. 5
- d) Explain the memory representation of circular queue. 5

3. Either:

- a) Write an algorithm to insert the Node in any given location of linked list. 5
- b) What are the various operation performed on linked list ? Explain. 5

OR

- c) Write a recursive function to calculate sum of digits of multidigit positive integer number. 5
- d) Discuss any two application of recursion with suitable example. 5

4 Either:

- a) Explain the memory representation of Binary trees. 5
- b) Write an algorithm to find out shortest path using Krushal algorithm. 5

OR

- c) Discuss the various terminology used in Graph. 5
- d) Write a algorithm to demonstrate pre-order Traversal. 5

5. Attempt all the questions.

- a) What are the various operation performed on data structures ? 2½
- b) Differentiate between stack and queue. 2½
- c) What are the properties of Recursive algorithm. 2½
- d) Write a short note on path matrix. 2½
