

B.Sc. (Part-II) CBCS Pattern Semester-IV
USCST07 - Computer Science Paper-I : Algorithm & Data Structures

P. Pages : 2

Time : Three Hours



GUG/W/23/12002

Max. Marks : 50

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- Notes : 1. All questions are compulsory and carry equal marks.
2. Draw neat & clean diagram wherever necessary.
3. Avoid vague answers and write answers relevant and specific to questions only.

Either:

1. a) Write an algorithm for insertion sort method. 5
b) What are the different types of searching? Write any one searching method algorithm. 5

OR

- c) Evaluate following infix to prefix & postfix notation. 5
i) $(A + B) * (C - D) / ((E \wedge F) \uparrow G)$
ii) $(A \wedge B) / (C * D) \wedge (E - F) * G$
d) What is stack? Write PUSH and POP algorithm. 5

Either:

2. a) Define recursion what are the properties of recursive function? 5
b) Write a note on- 5
i) Double ended Queue
ii) Circular Queue

OR

- c) Explain Queue with its memory representation. 5
d) Write an algorithm to generate the Fibonacci series using recursion. 5

Either:

3. a) What do you mean by linked list? Explain its memory representation with example. 5
b) Write an algorithm to insert an element ITEM into linked list at first position. 5

OR

- c) Write an algorithm to search the location of given element into linked list. 5
d) Write a note on Garbage collection. 5

Either:

4. a) Explain memory representation of binary tree with example. 5
b) Write preorder traversal algorithm for binary tree. 5

OR

- c) What is Graph? Discuss the methods of traversing a graph with suitable example. 5
d) Explain PRIM'S algorithm. 5
5. Attempt all the questions.
- a) Write note on complexity of algorithm. 2½
b) Explain priority Queue in brief. 2½
c) Explain double linked list. 2½
d) Write a short note on spanning tree. 2½
