NBS-003-1072005

NBS-003-1072005 Seat No. _____

M. C. A. (Sem. II) (CBCS) Examination

April / May – 2017

P2050 : Data Structure & Algorithm

Faculty Code : 003

Subject Code : 1072005

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

1 (a) Attempt the following objective questions : **4**

(1) Define data structure.

(2) What is non primitive data structure?

(3) What is text handling?

(4) What is tree?

(b) Attempt any one out of the two from the following : **2**

(1) Differentiate linear and non linear data structure.

(2) Write a program that converts a string to uppercase.

(c) Attempt any one out of the two from the following : **3**

(1) Explain primitive data structures.

(2) Explain representation of string.

(d) Attempt any one out of the two from the following. **5**

(1) Explain string manipulation and pattern matching.

(2) Write an algorithm for len( ) and match( ).

2 (a) Attempt the following objective questions : 4

(1) What is Top?

(2) What is queue?

(3) Give the types of linked list.

(4) What is dynamic memory allocation?

(b) Attempt any one out of the two from the following : 2

(1) Differentiate between stack and queue.

(2) Give the advantages of linked list.

(c) Attempt any one out of the two from the following : 3

(1) Write an algorithm of PEEP operation.

(2) Explain circular linked list with example.

(d) Attempt any one out of the two from the following : 5

(1) Explain PUSH and POP with example.

(2) Write a program to reverse string using stack.

3 (a) Attempt the following objective questions : 4

(1) What is binary tree?

(2) List out types of binary trees.

(3) Define leaf node.

(4) What is complete binary tree?

(b) Attempt any one out of the two from the following : 2

(1) Give advantages of tree.

(2) What is level of the binary tree?

(c) Attempt any one out of the two from the following : 3

(1) Explain properties of binary tree.

(2) Write an algorithm to post order traversal of binary search tree.

(d) Attempt any one out of the two from the following : **5**

(1) Write an algorithm to search a node from binary search tree.

(2) Write a program to delete node into binary search tree.

4 (a) Attempt the following objective questions : **4**

(1) What is sorting?

(2) List out different sorting techniques.

(3) What is sequential searching?

(4) What is Hash table?

(b) Attempt any one out of the two from the following : **2**

(1) Give the advantages of bubble sort.

(2) What is insertion sort?

(c) Attempt any one out of the two from the following : 3

(1) Explain internal sorting and external sorting.

(2) Write an algorithm of selection sort.

(d) Attempt any one out of the two from the following : **5**

(1) Write a program for heap sort.

(2) Write an algorithm for sequential search.

5 (a) Attempt the following objective questions : **4**

(1) List out types of knapsack problem.

(2) Define spanning tree.

(3) What is greedy method?

(4) Write a formula to find ratio in knapsack problem.

(b) Attempt any one out of the two from the following : **2**

(1) Write a note on search binary tree.

(2) Explain 0/1 knapsack problem.

(c) Attempt any one out of the two from the following : **3**

(1) Define general method.

(2) Explain minimum spanning tree with diagram.

(d) Attempt any one out of the two from the following : **5**

(1) Write an algorithm for knapsack method.

(2) Write an algorithm for job sequencing.
