Total No. of printed pages = 7

RETEST EXAMINATION – 2019

Semester : 4th (Old)

Subject Code : Co-402

DATA STRUCTURE USING C

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks for the questions.

Instructions :

1. Questions on PART – A are compulsory.
2. Answer any *five* questions from PART – B.

PART – A

Marks – 25

1. Fill in the blanks : 1×10=10

   (a) ——— is a way to store data in an organized form in the combination of row and column.

   (b) ——— refers to the operation or technique of arranging sets of data in some specific order.

[Turn over

(c) The process of visiting every node in a tree at least once, is called ———.

(d) ——— refers to the amount of storage the algorithm consumes.

(e) Items are inserted at the ——— of the stack.

(f) ——— Queue there is no beginning and ending , last room always attached with first room.

(g) ——— is a collection of nodes where each node has two parts, one is information and other is address part of next node.

(h) Each node of a Graph represented as the ——— of the graph.

(i) The way how to write operator in an expression is called ——— notation.

(j) The full form of LIFO is ———.

2. Write true or false of the following : 1×10=10

(a) In a Preorder traversal, the root node is visited first.

(b) When an element needs to be removed from the stack, the pop operation is performed.

(c) Bubble sort is so named because it bubbles the smallest element to the middle of the array.

(d) Graph is a linear data structure which is represented by array only.

(e) There are two types of Dequeue, input restricted and output restricted.

(f) Garbage collection is a form of automatic memory management technique.

(g) A binary tree is a tree which each node has at most two children, referred to as left child and right child.

(h) Link list element can be easily inserted or removed without reallocation or reorganization of the entire data structure.

(i) Linear search is more efficient than binary search.

(j) Tree is a linear data structure.

3. Choose the correct answer : 1×5=5

(a) What data structures are used for depth first traversal of a graph ?

(i) Queue

(ii) Stack

(iii) List

(iv) None of the above

(b) Which of the following uses FIFO method ?

(i) Hash table

(ii) Binary search tree

(iii) Queue

(iv) None of the above

(c) _____ is not the operation that can be performed on queue.

(i) Traversal

(ii) Insertion

(iii) Deletion

(iv) None of the above

(d) Which of the following data structures stores the Homogenous data elements ?

(i) Lists (ii) Pointers

(iii) Records (iv) Arrays

(e) What is the order of a matrix ?

(a) Number of rows *number of columns

(b) Number of columns*number of rows

(c) Number of rows*number of rows

(d) Number of columns*number of columns.

PART – B

Marks – 45

4. (i) Write about the binary searching algorithm.

(ii) What are the different types of data structure operation ?

(iii) What is complexity of algorithm and time space trade off ? 3×3=9

5. (i) Write the algorithm for matrix multiplication.

(ii) Write the algorithm for deletion of element from an array.

(iii) What are the differences between array and link list ? 3×3=9

6. (i) What are the different tree traversal methods ?

(ii) Write about BFS or DFS.

(iii) What is binary tree ? 3×3=9

7. (i) Write algorithm for stack push operation.

(ii) Write algorithm for insertion an element in a circular queue.

(iii) What is the postfix and infix expression ? 3×3=9

8. (i) Write an algorithm to insert a in a link list as a first node.

(ii) What is doubly link list ? What is its advantage ?

(iii) What are the different methods of Graph representation ? 3×3=9

9. (i) Write an algorithm for binary search in an array.

(ii) Write a C program for matrix multiplication.

(iii) What is radix sort ? 3×3=9