This question paper contains **3** printed pages]

Y—463—2019

FACULTY OF SCIENCE

B.Sc. (F.Y.) (Second Semester) (Backlog) EXAMINATION

NOVEMBER/DECEMBER, 2019

(CGPA Pattern)

COMPUTER SCIENCE

Paper IV

(Data Structures)

(MCQ + Theory)

(Friday, 13-12-2019)   **Time : 10.00 a.m. to 12.00 noon**

Time— Two Hours   *Maximum Marks—40*

N.B. :—   (*i*)   Attempt *All* questions.

      (*ii*)   Assume suitable data, if necessary.

      (*iii*)   Figures to the right indicate full marks.

(MCQ)

1.   Select the *correct* answer from the following MCQs :   10

   (*i*)   ....data structure where elements can be added or removed at either end but not in the middle.

     (*a*)   Linked lists   (*b*)   Stacks

     (*c*)   Queues   (*d*)   Deque

   (*ii*)   Linked list is implemented.......................

     (*a*)   Nodes   (*b*)   Structure

     (*c*)   Referential structure   (*d*)   None of these

   (*iii*)   An algorithm that calls itself directly or indirectly is known as ....

     (*a*)   Recursion   (*b*)   Notation

     (*c*)   Traversal algorithm   (*d*)   Array

P.T.O.

(*iv*) A queue is a ....

(*a*) First in first out (*b*) Tree

(*c*) Ordered array (*d*) Traversal

(*v*) .... is non-linear data structure.

(*a*) List (*b*) Stack

(*c*) Tree (*d*) String

(*vi*) ....sort uses divide and conqured strategy.

(*a*) Merge (*b*) Quick

(*c*) Radix-exchange (*d*) Binary

(*vii*) Inserting an item into stack, when stack is not full is called ....
operation.

(*a*) Insert (*b*) Push

(*c*) Delete (*d*) POP

(*viii*) To represent hierarchical relationship between elements .... data
structure.

(*a*) Tree (*b*) Graph

(*c*) Dequeue (*d*) Priority

(*ix*) A linear collection of data elements where the linear node is given by
means of pointer is called ....

(*a*) Linked list (*b*) Node list

(*c*) Primitive list (*d*) None of these

(*x*) The operation of processing each element in the list is known as ....

(*a*) Sorting (*b*) Merging

(*c*) Traversal (*d*) Inserting

(Theory)

2. (*a*) Explain any *three* data structure operations. 5

  (*b*) Explain representation of linear array concept. 5

Or

  (*c*) What is sorting ? Explain quick sort with a suitable example. 5

  (*d*) Explain Inserting and deleting linked list. 5

3. (*a*) What is stack ? Explain PUSH and POP operations. 5

  (*b*) Explain concept of time complexity analysis of sorting and searching techniques. 5

Or

  (*c*) Discuss memory represenation of linked list. 5

  (*d*) Explain Balanced trees concept. 5

4. (*a*) What is graph ? Explain representation of graphs using adjacency matrix. 10

Or

  (*b*) What is queue ? Explain with suitable example. 5

  (*c*) Explain linear search in detail. 5