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BF—367—2016

FACULTY OF SCIENCE

B.Sc. (Second Semester) EXAMINATION

OCTOBER/NOVEMBER, 2016

COMPUTER SCIENCE

Paper IV

(Data Structure)

(MCQ + Theory)

(Friday, 2-12-2016) **Time : 10.00 a.m. to 12.00 noon**

Time—2 *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 10

1. Choose the correct answer :

(*i*) To delete element of stack ..... operation is used.

(*a*) POP (*b*) PUSH

(*c*) DELETE (*d*) REMOVE

(*ii*) Tree is ..... data structure.

(*a*) Linear (*b*) Non-linear

(*c*) Homogeneous (*d*) Non-homogeneous

(*iii*) Finding location of given element is called ..... .

(*a*) Sorting (*b*) Traversing

(*c*) Searching (*d*) None of these

P.T.O.

(*iv*) The complexity of binary search is ..... .

(*a*) $\log n$ (*b*) $\log n + 1$

(*c*) $\frac{\log n + 1}{2}$ (*d*) $\log_2 n$

(*v*) Queue is also called as ..... .

(*a*) FIFO (*b*) LIFO

(*c*) FILO (*d*) LILO

(*vi*) ..... is collection of homogeneous data element.

(*a*) Stack (*b*) Array

(*c*) Queue (*d*) Tree

(*vii*) A list must be sorted is a limitation of ..... search.

(*a*) Linear (*b*) Hybrid

(*c*) Binary (*d*) Radix

(*viii*) Combining the records of two different files into a single file is known as ..... .

(*a*) Traversing (*b*) Sorting

(*c*) Searching (*d*) Merging

(*ix*) Conquer and divide is a technique of ..... sort.

(*a*) Quick sort (*b*) Bubble sort

(*c*) Bucket sort (*d*) Radix. sort

(*x*) Record is collection of ..... .

(*a*) File (*b*) Field

(*c*) Array (*d*) Queue

Theory

2. (*a*) Define data structure and its type. 5

(*b*) Explain how linear array is represented in memory. 5

Or

(*c*) Write an algorithm for traversing linear array. 5

(*d*) What is linked list ? Explain with example. 5

3. (*a*) What is binary tree ? Explain with example. 5

(*b*) Device an algorithm for linear search. 5

Or

(*c*) Explain merge sort. 5

(*d*) Write Warshall's algorithm. 5

4. Explain stack. Write an algorithm for PUSH and POP operation of stack. 10

Or

What is binary search ? Write an algorithm for binary search. 10