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AO—345—2018

FACULTY OF SCIENCE

B.Sc. (First Year) (Second Semester) EXAMINATION

MARCH/APRIL, 2018

(CBCS Pattern)

COMPUTER SCIENCE

Paper IV

(Analysis of Algorithm and Data Structure)

(MCQ+Theory)

(Friday, 27-4-2018)

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)

1. Choose the *correct* answer : 10

(1) Data items that are divided into subitems are called

(a) Elementary items (b) Group items

(c) Field (d) Record

(2) The logical or mathematical model of a particular organization of data is called.....

(a) Record (b) Data structure

(c) Entity set (d) Information

(3) Combining the records in two different sorted files into a single sorted file is known as

(a) Traversing (b) Inserting

(c) Merging (d) Searching

P.T.O.

- (4) If linked list has no nodes, then list is called
- (a) Simple list (b) Header list
(c) Rounded list (d) Empty list
- (5) STACK is also called list.
- (a) FILO (b) FIFO
(c) LIFO (d) LILO
- (6) QUEUE is also called list.
- (a) LIFO (b) FIFO
(c) FOFI (d) LIFO
- (7) is a non-linear type data structure.
- (a) Stack (b) Queue
(c) Tree (d) Linked list
- (8) A graph G is said to be connected, if there is a path between any of its nodes.
- (a) Four (b) Three
(c) One (d) Two
- (9) A graph G is said to be labelled, if its edges are assigned
- (a) Data (b) Information
(c) Value (d) None
- (10) A path p , of length n from a node u to a node v is defined as a sequence of nodes.
- (a) $n/1$ (b) $n*1$
(c) $n-1$ (d) $n+1$

(Theory)

2. (a) Explain divide and conquer technique. 5
- (b) Explain any *five* mathematical notations/functions. 5
- Or*
- (c) Give memory representation of linked list. 5
- (d) Write an algorithm for inserting after a given node in linked list. 5
3. (a) Explain the concept of queue with an example. 5
- (b) Write an algorithm for POP operation in stack. 5
- Or*
- (c) Explain array representation of stack. 5
- (d) Write an algorithm to insert an element in queue. 5
4. (a) What is graph ? Explain sequential representation of graph. 10
- Or*
- (b) What is binary tree ? Explain sequential representation of binary tree. 10