



A Charutar Vidya Mandal's Institution
V.P. & R.P.T.P. SCIENCE COLLEGE
(AUTONOMOUS) (Grant-in-Aid)
Affiliated to Sardar Patel University
VALLABH VIDYANAGAR-388120



Bachelor of Computer Applications (Semester- 3) External Examination – 2025
US03MABCA01: Fundamentals of Data Structures

Date: 06-10-2025, (MONDAY)

Time: 02:00 PM to 04:30 PM (2.5 hrs)

Total marks: 50

Q-1 Write the most appropriate answer from the following multiple-choice questions.

[10]

- (1) _____ are the building blocks of program.
(a) Information (b) Data
(c) Data Structure (d) Data Types
- (2) The number of elements in an array is called the _____ of the array
(a) Size (b) Base
(c) Type (d) Index
- (3) Index is also known as _____.
(a) Base (b) Non-subscript
(c) Subscript (d) Type
- (4) A stack is _____ type of data structure.
(a) Linear (b) Non-Linear
(c) Both (A) and (B) (d) None of above
- (5) An operation that is used to insert an element on a stack is known as _____.
(a) Pop (b) Push
(c) Peep (d) Change
- (6) A notation in which the operator is written before the operands.
(a) Postfix (b) Prefix
(c) Both (A) and (B) (d) None of above
- (7) A binary tree has at most _____ child.
(a) One (b) Three
(c) Two (d) None of above
- (8) Leaf node is known as _____ node.
(a) Terminal (b) Parent
(c) Root (d) Non-terminal.
- (9) A linked list is considered as an example of _____ type of memory allocation.
(a) Static (b) Dynamic
(c) Compile time (d) None of above
- (10) Which of the following is the type of Singly linked list?
(a) One-way list (b) Three-way list
(c) Two-way list (d) Four-way list



Q-2 Explain in brief Classification of Data Structure. [10]

OR

Q-2 List applications, advantages & disadvantages of Data Structure. [10]

Q-3 Write an algorithm for Push, POP, Peep and Change operation of a stack. [10]

OR

Q-3 Define Queue. List all and explain any three types of Queue with example. [10]

Q-4 Define traversal. List all traversal and discuss any one with algorithm. [10]

OR

Q-4 Explain the representation of binary tree. [10]

Q-5 What is searching? List searching techniques and explain ANY ONE of them with algorithm. [10]

OR

Q-5 Write down the algorithm of bubble sort and Merge sort with an example. [10]

