P. T. O.

Roll No.

BCA-06

Data Structure Through C Language

Bachelor of Computer Applications (BCA–11/61) Second Semester, Examination, 2017

Time : 3 Hours

Max. Marks: 70

Note: This paper is of seventy (70) marks containing three (03) sections A, B, and C. Attempt the questions contained in these sections according to the detailed instructions given therein.

Section-A

(Long Answer Type Questions)

- **Note :** Section 'A' contains four (04) long answer type questions of fifteen (15) marks each. Learners are required to answer *two* (02) questions only.
- 1. (a) What is the Data Structure ? Explain the types of data structure with an example. 10
 - (b) What is an Algorithm ? What is the difference between time and space complexity of an algorithm ?5
- 2. (a) What is Stack ? What are the different applications of stack ? Explain with an example.
 - (b) What is an array ? Explain the types of array with an example.7

- 3. (a) Write a C program to perform the following operation : 10
 - (i) Create a list adding nodes at front
 - (ii) Delete a node given position
 - (b) What are the *five* characteristics of linked list? 5
- 4. (a) What is Recursion ? Illustrate with an example. What are the disadvantages of recursion ? 8
 - (b) Write a program to interest ten element in array and displays the list in the reserve order.

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Section-B

(Short Answer Type Questions)

- **Note :** Section 'B' contains eight (08) short answer type questions of five (5) marks each. Learners are required to answer *six* (06) questions only.
- 1. What is priority queue ? Differentiate between ordinary queue and priority queue.
- 2. Define Structures. Give an example of nested structures.
- 3. Write a short note on dynamic memory allocation.
- 4. Write any *five* qualities of a good algorithm.
- 5. Discuss on the conversion of infix expressions to polish notation.
- 6. Write a note on queue and its types.
- 7. What is Queue ? What are the applications of queue ?
- 8. Differentiate between linear and non-linear data structure.

Section-C

(Objective Type Questions)

- **Note :** Section 'C' contains ten (10) objective type questions of one (01) mark each. All the questions of this section are compulsory.
- 1. Full form of ADT is :
 - (a) Advanced Data Type
 - (b) Array Data Type
 - (c) Abstract Data Type
 - (d) None of the above
- 2. Which of the following data structure is not linear data structure ?
 - (a) Arrays
 - (b) Linked lists
 - (c) Both of the above
 - (d) None of the above
- 3. is a step-by-step procedure for calculation.
 - (a) Data structure
 - (b) Abstract data type
 - (c) Primitive data type
 - (d) Algorithm
- 4. Representation of data structure in memory is known as :
 - (a) Recursive
 - (b) Abstract data type
 - (c) Storage structure
 - (d) File structure

- 5. Which of the following name related to stacks ?
 - (a) FIFO (b) LIFO
 - (c) POP (d) All of these

6. In which notation operator is comes after operand ?

- (a) Infix (b) Prefix
- (c) Postfix (d) None of these

7. In which linked list, nodes in form of ring?

- (a) Singly linked list (b) Double linked list
- (c) Circular list (d) All of these
- 8. Which of the following traversal techniques lists the nodes of a binary search tree in ascending order ?
 - (a) Post-order (b) In-order
 - (c) Pre-order (d) None of these
- 9. In breadth first search of graph, which of the following data structure is used ?
 - (a) Stack (b) Queue
 - (c) Linked list (d) None of these
- 10. The largest element of an array index is called its :
 - (a) Lower bound (b) Range
 - (c) Upper bound (d) All of these

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