M.C.A. SEM - IV (CHOICE BASED CREDIT SYSTEM 2011 & 2012 COURSE) : **WINTER - 2017**

SUBJECT : APPLIED DATA STRUCTURES

Day : **Friday** Time : **10.00 AM TO 01.00 PM**

Date : **10/11/2017** Max. Marks : 100

W-2017-1700

N.B.:

1) Attempt **ANY FIVE** questions from Section – I and **ANY TWO** questions from Section – II.
2) Answers to both the sections should be written in **SEPARATE** answer books.
3) Figures to the right indicate **FULL** marks.

SECTION – I

Q.1 Define Array. Explain Array as ADT. **[15]**

Q.2 Write algorithms for different search techniques. State its advantages and disadvantages. **[15]**

Q.3 Write an algorithm for insertion sort technique. **[15]**

Q.4 Implement singly linked list. Discuss on dynamic memory allocation. **[15]**

Q.5 Define ADT. Implement date as ADT. **[15]**

Q.6 Write note on **ANY THREE** of the following: **[15]**

a) Breadth first traversal

b) AVL tree

c) Recursive functions

d) Deque

e) Circular linked list

SECTION – II

Q.7 Write a program to convert infix form of expression to postfix form. Trace your program for following expression. **[20]**

$5*(6+3)/3-8$

Note: apply appropriate data structure.

Q.8 Write a program to demonstrate FIFO process scheduling using queue. **[20]**

Q.9 Generate binary search tree to represent following data items. Trace the same using in-order traversing and comment an result: **[20]**
Data items: 40, 25, 55, 36, 12, 52, 68, 20, 60, 30.

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