

2016*Time : 3 hours**Full Marks : 100**Qualifying Marks : 40*

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

*Answer any **five** questions.*

(FUNDAMENTAL OF DATA STRUCTURE)

1. Write notes on the following : $5 \times 4 = 20$
- (a) Structure
 - (b) Array
 - (c) Pointer
 - (d) Do while
2. Write C-function of the following : $10 \times 2 = 20$
- (a) To reverse a singly linked list
 - (b) To insert a node in singly linked list

JG – 3/2

(Turn over)

3. Differentiate between the following : $10 \times 2 = 20$

(a) Array and Linked list

(b) AVL Tree and Binary Search Tree (BST)

4. (a) Change the following infix expressions into postfix : 10

$(a - b) * (c + d) / (f - (g - h))$

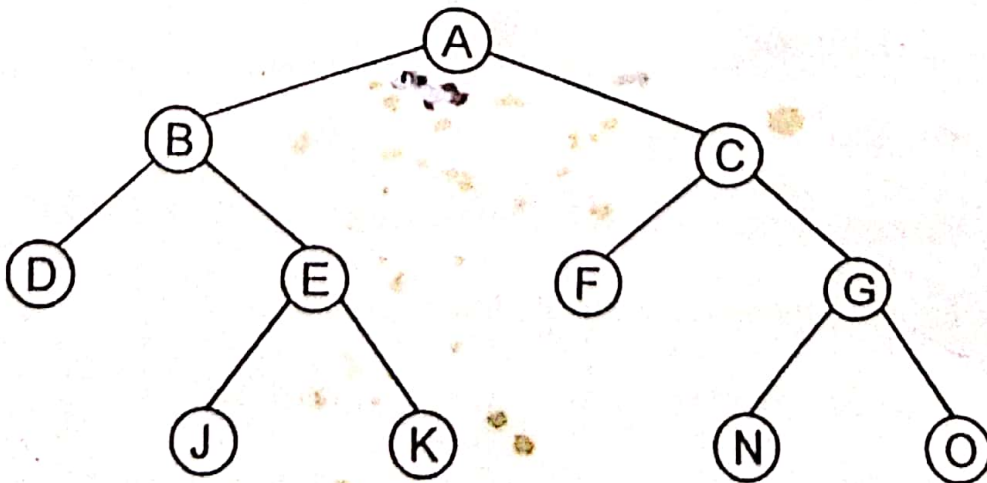
(b) Write a C-program to implement Binary Tree. 10

5. Write a C-Program to reverse a queue using one additional stack. 20

6. (a) What are the differences between Singly linked list and Doubly linked list. 10

(b) Implement PUSH and POP operations of stack in C-language. 10

7. Give the sequential representation of the following tree : 20



JG - 3/2

(2)

Contd.

8. (a) Write a function that finds height of a binary tree. 10
(b) What is Threaded Binary Tree ? 10
9. Draw a binary tree of the following sequences : 20

Pre-order	In-order
A	B
B	H
C	G
D	A
E	C
F	D
G	E
H	F

10. Write a C-program to add two polynomial equations by using Linked List. 20



JG – 3/2 (600)

(3)

VKV(II) — BCA (3)

2017

Time : 3 hours

Full Marks : 100

Pass Marks : 40

Candidates are required to give their answers in their own words as far as practicable.

The questions are of equal value.

Answer any five questions.

- 1. Describe data structure and discuss advantage of using Arrays in a program.**
- 2. Write the method of defining and accepting data in a two dimensional array with the help of an algorithm.**
- 3. Explain memory allocation and de-allocation and justify why it is needed in a program.**

4. Describe linear and non-linear data structure with example.

5. Define stack ? Explain PUSH and POP with reference to use in a stack.

6. Explain Queue data structure and explain how it is different from stack.

7. Describe Tree traversing. Explain PRE-ORDER traversing with a suitable example.

8. List out difference between dynamic memory allocation and static memory allocation.

9. Convert the following postfix expression into prefix expression :

$76 - + 87 * 7 - / +$

10. Write short notes on the following :

(a) Heap sort

(b) Binary search

2018

Time : 3 hours

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Pass Marks : 40

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The questions are of equal value.

Answer any five questions.

1. Write a program in 'C' to insert and delete an element in a circular link list.
2. (a) Write an algorithm to concatenet two singly linked list.
(b) Write an algorithm to split a singly linked list in two part.
3. What is meant by stack ? What are the applications of stack ? Write Push and Pop function in 'C'.

4. Write a procedure to convert in-fix expression to post-fix expression. Apply the procedure on the following expression :

$$((A + B) * D) \uparrow (E - F)$$

5. What is meant by Queue ? Write a program in 'C' to create a queue from a stack.
6. Write an algorithm to insert an element in a binary search tree.
7. What is AVL tree ? What are its advantages ? Create an AVL tree using the following sequence of data :

16, 27, 9, 11, 36, 54, 81, 63

8. Explain the threaded binary tree in detail.
9. Write an algorithm for binary search. Calculate the time complexity of above algorithm.
10. Write short notes on the following :
- (a) Data Structure
 - (b) B-Tree
 - (c) Dynamic Memory Allocation



LA-3/2(800)

(2)

VKV(II) — BCA (3)