

**AE-1289**

B.Sc. (Part - III)  
Term End Examination, 2016-17

**INFORMATION TECHNOLOGY**

Paper - II

Fundmantal Data Structure

*Time* : Three Hours]      [*Maximum Marks* : 50

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**Note** : Answer **all** questions. All questions carry equal marks. Draw diagrams to justify your answer.

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1. What is Stack ? How they can be represented in memory ? Explain it with example.

**OR**

Convert the following infix expression into the equivalent post-fix expression :

$$a + (b + c) * d \Delta e + f - g / h * k$$

( 2 )

2. What is Linked List ? Write an algorithm to delete a node from any position in the given single linked list.

**OR**

Write an algorithm to find a given element in the circular linked list.

3. What is 2-3 Tree ? What is the maximum and minimum height of the 2-3 Tree at  $n$  nodes ? Explain it with suitable example.

**OR**

What is Tree ? Explain the different representation of Tree with their advantages and disadvantages.

4. Write binary search algorithm.

**OR**

Arrange the following elements in ascending order using quick sort :

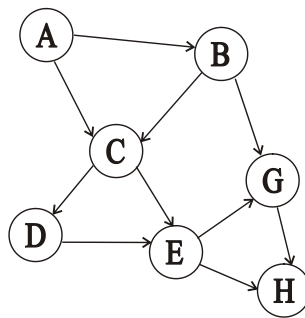
14, 25, 40, 20, 12, 2, 8, 9, 60, 70

5. What is Hashing ? Explain Collision resolution techniques with example.

**OR**

( 3 )

Find the Depth First Traversal of the following graph :



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