OR

8. (p) Define the following Term with suitable example :—

(i) Degree of Node

(ii) Sibling

(iii) Terminal Node

(iv) Level of Tree

(v) Node

(vi) Forest. 12

9. (a) What is Sorting ? Explain the Bubble Sort algorithm. 6

(b) Explain the BINARY SEARCH algorithm with example. 6

OR

10. (p) What is Searching ? Explain linear search method with example. 6

(q) Explain the insertion sort algorithm with example. 6

AL – 528

Third Semester B. C. A. (Part - II) Examination

DATA STRUCTURE

3 ST 1

P. Pages : 4

Time : Three Hours] [Max. Marks : 60

Note : (1) All questions are compulsory.
(2) Assume suitable data wherever necessary.

1. (a) What is data structure ? Explain the various operations perform on data structure. 6

(b) What is stack ? Explain the representation of stack in computer memory. 6

OR

2. (p) What is array ? Explain the memory representation of array in computer memory. 6

(q) Consider the following stack of characters where STACK is allocated N=7 memory cells.
STACK: D, A, T, A, –, –, –
Describe the stack as the following operation takeplace.

(i) PUSH S

(ii) PUSH T

(iii) PUSH R

(iv) POP ITEM

(v) POP ITEM

(iv) PUSH Q. 6

3. (A) Explain the translation of Prefix to Postfix Using Recursion. 6

(B) What is Recursion ? Explain its types with suitable example. 6

OR

4. (p) Write an algorithm to find the factorial of a given number N Using Recursion. 6

(q) Transform the following expressions to prefix.

(i) (A*B) + (X+Y)

(ii) (X+Y)*(C–D/E)–F

(iii) (A+B)*(C/(D–E)) 6

5. (A) What is Linked List ? Explain the memory representation of Linked List. 6

(B) Show how a queue will be maintain by a circular array with N = 6 memory location for the following operations :—

(i) INSERT A, B C

(ii) DELETE

(iii) INSERT D

(iv) DELETE

(v) DELETE

(vi) INSERT E. 6

OR

6. (p) What is Queue ? Explain the algorithm to delete the element from the queue. 6

(q) What is Linked List ? Explain the advantages and disadvantages of Linked List. 6

7. (a) Define complete Binary Tree. Explain Linked Representation of Binary Tree. 6

(b) Draw a Tree to represent

E = [a + (b–c)] * [(d–e)/(f+g–h)] 6