

D-27.

8. Evaluate the following postfix expression & show all steps  $ab * c + d - e +$

- Ans:
- Step 1 : Scan value of  $a$ , push in stack.
  - Step 2 : Scan value of  $b$ , push in stack.
  - Step 3 : at third position operator is there so Pop two items from stack.
  - Step 4 : Now expression become  $(a * b)$  push it in stack.
  - Step 5 : Push  $c$  in stack.
  - Step 6 : operator is there after  $c$  so pop two items from stack. i.e.  $(a * b), c$ .
  - Step 7 : Now expression become  $(a * b) + c$ , push.
  - Step 8 : Push  $d$  in stack.
  - Step 9 : operator is there after  $d$  so pop two items.
  - ~~Step 10 :~~ i.e.  $[(a * b) + c], d$ .
  - Step 10 : Now expression become  $[(a * b) + c] - d$ , push.
  - Step 11 : Push  $e$  in stack.
  - Step 12 : operator is there after  $e$  so pop two items i.e.  $[(a * b) + c] - d, e$ .
  - Step 13 : Now expression become  $[(a * b) + c] - d + e$ .
- $\therefore$  Final expression is  $[(a * b) + c] - d + e$

8. Write algorithm to prein to postin.

Ans:

Algorithm:

- ① Read the prein expression in reverse order (from right to left)
- ② If the symbol is an operand, then push it onto stack.
- ③ If the symbol is an operator then pop two operand from stack.
- ④ Create a string by concatenating the two operands & operator after them.  
$$\text{String} = \text{operand1} + \text{operand2} + \text{operator}$$
and push result into stack.
- ⑤ Repeat the steps until end of prein expression.