a) Implementation of stack using array. In Array implementation, the stack by using the array. All the operation regarding stack are performed using arrays. Algorithm for push operation?

if there or be

1 begin

@ it top = n then stack full

3 top = top+1

1 stack (top): data

3 end.

Time complexity o(1).

Algorithm for pop aperation:

begen.

item top = 0 then stack empty;

item = stack (top); 3

top = top-1;

B end.

Time complexity: 0(1)

```
switch (choice)
                     top or the rest or to
          1 puch ();
              forealch;
     case 2:
             Pop();
             break ;
                                  emolarde estations
    Care 3:
          to got in a mois in top by
             MB-Show () i
                                      t ( ) rang bior
             meak;
                                     Tr. Jeat bar
           4
    case 4:
          prints ("Exiting ....");
preale; a la radionna est satural stage
default : me prise extituege storie ____ ") flore
        printf ("Enter avalid choice");
                                 1 201010 \ 317/w
 printy (" choose one from below options. In );
CONTRACT ON 1 - ENGLIS ON GOOD ON THE STATE
                le not f (" sorter going charce") i
                      [(assort ( " x 4" , " & choses ) )
```

```
void purh ()
       it (top = = n)
       pounts ("In overflow");
       else
          prints ("Enter to value?");
         Scant (7.d", & ralue);
  of the top = top + 130 movies and governouser
         Stack CtopJ = value; god blooms thous
  Just contend the Seamed Character & 1 1 and
 void pop ()
               all opened to precedence is
    it (top = = -1)
   printt (" under flow");
             the operator into stack.
    else
hope top = top-13 motorage pros sile .
  recedence then the tenvered open of the
popped. Push this scanned openin apre-
void show ()
  for ( i = top ; i > 0 ; i - - )
  of prints (" ",din", stack [:]);
stace and output it entil aporter " 1' as
 both the passenthat
  ib (top = = -1) or
```

```
Algorithm for Jeek operation
   Begin
   it top = - 1 then stack empty
                           horas ()
3) item = stack (top)
   return (stens)
    end.
  time complexity: O(n)
                               : () 900
Program :-
#include estatio bx
                                         5 33.55
int stack [100] , 1, j, choice=0 ,n, top=-1;
                              : Burrel
 void puch ();
 void porla;
 void snow ();
 void mun ()
                          profit vs " ) Thurst
                the number of elements instack");
  pront t ("Enter
  scant (" /d", &n);
  printf (" --- - stack operations using array --- );
              souds ("Enter avalta charce"
  while (choice != 4)
   printf (" choose one from below options ... (");
    print f ("In 1. push in 2. pop in 5. Show in 4. Exit");
    pornt f (" Enter your choice:");
    Blant (" 7.d", & choice);
```

4

b) Conversion of intix expoession to postfix expression:

() trong to

Algorithm:

1. Traversing the given expression from left to

(Combone "h. S) from

- 2 Just output the scanned Character it it is an operand.
- o If operand's precedence is greater than the operator's precedence in the stack (or the stack is empty or has'('), then put the operator into stack.
 - · Else any operator with more or equal Precedence than the traversed operator and popped. Push this Scenned operator after you pop them.
- 4) push the scanned character it it is a "(".
- 5. If the scarmed operator is ')', pop the stack and output it until another 'l'append then diminate both the parsentheses.

```
Tower of Hano: position um
     Solvery Tower
      recursion.
     # mclude < std10.h?
     void move (int n, int source, int destination,
               int auxilory?
       16 (n = = 1) d
         prentt ("move desk i from source had to
    destination % of in", n, course detending
         return;
   10 3; 1849, breezes on 257
    move (n-1, source auxelong, destination):
    printf ( moveded rd from yource red to destrute
            ndin", n. source, destination);
    move (n-1, auxiliary, destination, source);
    Good spag , promise at with targe with it .
int main () of
      int n; bearing as retrieved and the
        prentf (" Enter the no of duke: ");
  Scant (" "d", &n);
move (n, 1, 3, 3);
and and preturnoss is no test prost plan it
with some yes were and must the thousand their
       Mad South was no
                          to about 1940 ?
    Time complexity for the problems
       o(29-1) & Space complexity is O(1)
```

- 6. steps 2 through 6 should now be repeated. until the entire characters, is scanned.
- printing results.
- pop and print until the stack a not mempty som armor the a to severe book
- (c) Evaluation of Posthix expression.

Algorithm :-

property ("move dest , steps some) frage Read in one symbol at a time from the actumn; Postfix expression.

1 Any time you see an operand, put it onto

p (1 = = 0) At

- The stack.

 (2) Any time you see a binorry operator (+,-, *, 1) or warry (square root, negative sign operator
 - . If the operator is binary, pop two elements off the stack.
 - . It the operator a unary, pop one element of the stack all rotus" Italy
 - · Evaluate those operande with that operator.
 - · Puch the result back onto the ctack.

when you are done with the entire expression, the only thing left on the stack should be the truel result. If there are zero or more them 1 operands left on the stack, afther your program is blawed for the expression is moded. Is the soldings sold (1-12)0