DS&AI

Data Structure & Algorithm

Applications Of Stack

Q1 The Result after evaluating the Postfix Expression:
20 50 * 5 4 * / 2 / 2 ^ Is _____.
(A) 25   (B) 12
(C) 625   (D) 2

Q2 The Postfix Expression for an infix expression
((A + B) — C * (D / E)) + F is
(A) A B + C D E * / - F +
(B) A B + C D E / * - F +
(C) A B + C D E / - F + *
(D) A B + C D E / * F + -

Q3 The Postfix Expression for an infix expression
a+b*(c^d-e)^(f+g*h)-i is
(A) abcd^e-fgh*+^*+i-
(B) abcd^e*-fgh*+^+i-
(C) abcd^e-*fgh+^*+i-
(D) abcd^e-fgh+^**+i-

Q4 The result after evaluating the Postfix Expression
20 50 3 6 + * * 300 / 2 - is _____

Q5 Which of the following permutation can be obtained in the same order using a stack assuming that input is the sequence 5, 6, 7, 8, 9 in that order ?
(A) 7, 8, 9, 5, 6
(B) 5, 9, 6, 7, 8
(C) 7, 8, 9, 6, 5
(D) 9, 8, 7, 5, 6

Q6 Consider the following array implementation of stack:
#define MAX 10
struct STACK
{
    int arr [MAX];
    int top = -1;
}
If the array index starts with 0, the maximum value of top which does not cause stack overflow is?
(A) 8   (B) 9
(C) 10   (D) 11

Q7 Evaluate and write the result for the following postfix expression
abc*+de*f+g*+ where a = 1, b = 2, c = 3, d = 4, e = 5, f = 6, g = 2.
(A) 55   (B) 59
(C) 60   (D) 61

Q8 Identify the valid stack permutations for the input sequence
1,2,3,4,5,6,7,8,9,10,11,12.
(A) 5,9,10,12,11,8,7,6,4,3,2,1
(B) 1,2,3,4,5,10,12,11,6,7,8,9
(C) 1,3,5,7,9,12,11,10,8,6,4,2
(D) 5,4,3,2,1,12,11,10,9,8,7,6

Q9 The following sequence of operations is performed on stack:
PUSH (10), PUSH (20), POP, PUSH (10), PUSH (20), POP, POP, POP, PUSH (20), POP
The sequence of the value popped out is:
(A) 20,10,20,10,20
(B) 20,20,10,10,20
(C) 10,20,20,10,20
(D) 20,20,10,20,10

Q10 Consider a stack processor which has 2 stack operations, PUSH and POP.
The operations are as below:
PUSH a
PUSH b
PUSH c
ADD

PUSH d
MUL
PUSH e
DIV
PUSH f

SUB
ADD
What will be the final content of the stack if a = 2, b = 7,c = 4, d = 3,e = 6 and f = 5?

Answer Key

Q1	(C)		**Q6**	(A)
Q2	(B)		**Q7**	(B)
Q3	(A)		**Q8**	(A, C, D)
Q4	28		**Q9**	(B)
Q5	(C)		**Q10**	2

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Hints & Solutions

Q1 **Text Solution:**

C

Q2 **Text Solution:**

B

Q3 **Text Solution:**

A

Q4 **Text Solution:**

28

Q5 **Text Solution:**

C

Q6 **Text Solution:**

A

Q7 **Text Solution:**

B

Q8 **Text Solution:**

ACD

Q9 **Text Solution:**

B

Q10 **Text Solution:**

2

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