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Section: F12

Q1:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Original | S.pop(); | S.push(11); | S.pop(); | S.pop(); | S.pop(); | S.push(2); | S.push(3); | S.push(4); | S.push(5); |
|  |  |  |  |  |  |  |  |  | Top = 5 |
| Top = 11 |  | Top = 11 |  |  |  |  |  | Top = 4 | 4 |
| 30 | Top = 30 | 30 | Top = 30 |  |  |  | Top = 3 | 3 | 3 |
| 25 | 25 | 25 | 25 | Top = 25 |  | Top = 2 | 2 | 2 | 2 |
| 17 | 17 | 17 | 17 | 17 | Top = 17 | 17 | 17 | 17 | 17 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |

Applying the for-loop code:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| i = 0 | i = 1 | i = 2 | i = 3 | i = 4 | i = 5 | i = 6 | i = 7 |
| printed | False | True | False | True | False | False | True | False |
| Top = 5 |  |  |  |  |  |  |  |
| 4 | Top = 4 |  |  |  |  |  |  |
| 3 | 3 | Top = 3 |  |  |  |  |  |
| 2 | 2 | 2 | Top = 2 |  |  |  |  |
| 17 | 17 | 17 | 17 | Top = 17 |  |  |  |
| 1 | 1 | 1 | 1 | 1 | Top = 1 |  |  |
| 4 | 4 | 4 | 4 | 4 | 4 | Top = 4 |  |
| 20 | 20 | 20 | 20 | 20 | 20 | 20 | Top = 20 |

Output: 4 2 4

Q2:

1. Infix to Postfix a+b\*c+d\*e#

|  |  |
| --- | --- |
| Stack | Postfix |
|  |  |
|  | abc\*+de\*+ |
|  | abc\*+ |
| \* \* | ab |
| + + | a |

1. What is the top of the stack after third \* operations in 6 2 3 \* / 3 4 \* + 3 6 \* −

|  |  |  |  |
| --- | --- | --- | --- |
| Stack till first \* | Stack till second \* | Stack till third \* | Final Stack |
|  |  |  |  |
| \* | \* | \* |  |
| 3 | / 4 | + 6 |  |
| 2 | 6 3 | 12 3 | Top = 18 |
| 6 | 6 1 | 1 13 | 13 |

1. Show the step-by-step process of evaluation of the postfix expression 2 4 6 +\* and show the status of the stack after every operation.

|  |  |  |
| --- | --- | --- |
| Step 1 | Step 2 | Step 3 |
|  |  |  |
| + |  |  |
| 6 | \* |  |
| 4 | 10 |  |
| 2 | 2 | 20 |