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Section: IT12S1

Convert the following infix expressions to postfix forms.   
  
1. Infix : ((A \* (B/C+D)\*E)-(F\*G) ^ (H\*I))

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Symbol | Scanned | Stack | Postfix Expression | Description |
| 1 | ( | ( |  | Start |
| 2 | A | (( | A |  |
| 3 | \* | ((\* | A |  |
| 4 | ( | ((\*( | A |  |
| 5 | B | ((\*( | AB |  |
| 6 | / | ((\*(/ | AB |  |
| 7 | C | ((\*(/ | ABC |  |
| 8 | + | ((\*(+ | ABC/ | ‘/’ is at higher precedence than ‘+’ |
| 9 | D | ((\*(+ | ABC/D |  |
| 10 | ) | ((\* | ABC/D+ | ‘+’ pop from the stack |
| 11 | \* | ((\* | ABC/D+\* | ‘\*’ pop from the stack |
| 12 | E | ((\* | ABC/D+\*E |  |
| 13 | ) | ( | ABC/D+\*E\* | ‘\*’ pop from the stack |
| 14 | - | (- | ABC/D+\*E\* |  |
| 15 | ( | (-( | ABC/D+\*E\* |  |
| 16 | F | (-( | ABC/D+\*E\*F |  |
| 17 | \* | (-(\* | ABC/D+\*E\*F |  |
| 18 | G | (-(\* | ABC/D+\*E\*FG |  |
| 19 | ) | (- | ABC/D+\*E\*FG\* | ‘\*’ pop from the stack |
| 20 | ^ | (-^ | ABC/D+\*E\*FG\* |  |
| 21 | ( | (-^( | ABC/D+\*E\*FG\* |  |
| 22 | H | (-^( | ABC/D+\*E\*FG\*H |  |
| 23 | \* | (-^(\* | ABC/D+\*E\*FG\*H |  |
| 24 | I | (-^(\* | ABC/D+\*E\*FG\*HI |  |
| 25 | ) | (-^ | ABC/D+\*E\*FG\*HI\* | ‘\*’ pop from the stack |
| 26 | ) | Empty | ABC/D+\*E\*FG\*HI\*^- | ‘^’ and ‘-‘ are pop from the stack. End |

2. Infix : (A\*(B-(C\*D))+(E/F^G))

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Symbol | Scanned | Stack | Postfix Expression | Description |
| 1 | ( | ( |  | Start |
| 2 | A | ( | A |  |
| 3 | \* | (\* | A |  |
| 4 | ( | (\*( | A |  |
| 5 | B | (\*( | AB |  |
| 6 | - | (\*(- | AB |  |
| 7 | ( | (\*(-( | AB |  |
| 8 | C | (\*(-( | ABC |  |
| 9 | \* | (\*(-(\* | ABC |  |
| 10 | D | (\*(-(\* | ABCD |  |
| 11 | ) | (\*(- | ABCD\* | ‘\*’ pop from the stack |
| 12 | ) | (\* | ABCD\*- | ‘-‘ pop form the stack |
| 13 | + | (+ | ABCD\*-\* | ‘\*’ pop from the stack |
| 14 | ( | (+( | ABCD\*-\* |  |
| 15 | E | (+( | ABCD\*-\*E |  |
| 16 | / | (+(/ | ABCD\*-\*E |  |
| 17 | F | (+(/ | ABCD\*-\*EF |  |
| 18 | ^ | (+(/^ | ABCD\*-\*EF |  |
| 19 | G | (+(/^ | ABCD\*-\*EFG |  |
| 20 | ) | (+ | ABCD\*-\*EFG^/ | ‘^’ and ‘/’ are pop from the stack |
| 21 | ) | Empty | ABCD\*-\*EFG^/+ | ‘+’ pop from the stack. End |