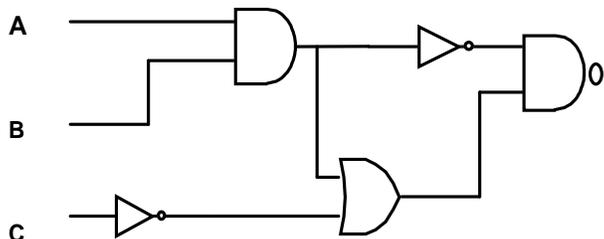


**1. Digital Electronics**

Find all ordered triplets (A,B,C) that make the following circuit TRUE.



**2. Prefix/Postfix**

If A = 7, B = 9, C = 3, D = 4, E = 6, and F = 8, evaluate the following postfix expression:

$$A B C D E A - + * / + F E - +$$

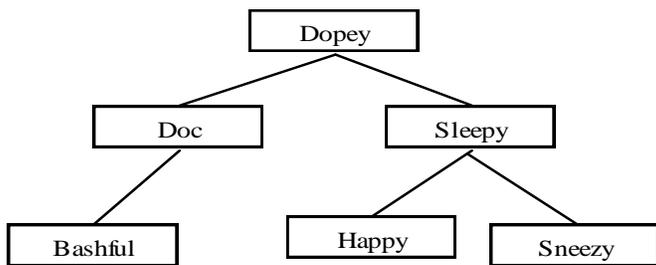
**3. Prefix/Postfix**

Find all integer values of X for which the following prefix expression has a value of zero:

$$* + X 4 - 6 X$$

**4. Data Structures**

When “Grumpy” is inserted into the following binary search tree, what is the new external path length of the tree?



**5. Data Structures**

Consider the following operations on an initially empty stack. If a POP is now performed, what value would be popped?

- |          |          |
|----------|----------|
| PUSH (B) | PUSH (D) |
| PUSH (I) | POP (X)  |
| PUSH (N) | PUSH (S) |
| POP (X)  | POP (X)  |
- ↗

