

**1. Digital Electronics**

The circuit translates to  $A(B + \overline{B})$ . This simplifies to  $A$ . The circuit is TRUE for (1, 0) and (1, 1). It is FALSE for (0, 1) and (0, 0).

1. D

**2. Prefix/Postfix**

The given expression converts to infix as follows:

$$A((A + B) / (C - (A / B)))$$

This converts to prefix as follows:

$$* A / + AB - C / AB$$

2. \* A / + AB - C / AB

**3. Prefix/Postfix**

Converting the formula to infix produces the following:

$$V = 4 / 3 * \pi * R \uparrow 3$$

This converts to prefix as follows

$$= V * * / 4 3 \pi \uparrow R 3$$

3. = V \* \* / 4 3 \pi \uparrow R 3

**4. Data Structures**

The following is the result after each operation:

B, BI, BIN, IN, IND, ND, NDS, DS

The next item to be popped would be the D

4. D

**5. Data Structures**

Vulcan becomes the right child of VENUS. The values to be added are:

$$2+3+3+3+3+4+4+4+4 = 30$$

5. 30