1. What Does This Program Do - Looping

When the following program is run with X = 20, what is the final value of C?

```
10  C = 0
20  D = X – 1
30  IF X/D <> INT (X / D ) THEN D = D - 1 ELSE C = D
40  IF C = 0 THEN GOTO 30
50  END
```

2. Boolean Algebra

Simplify completely

\[
\overline{X}(X + \overline{Y}) + \overline{Y}(\overline{Y} + \overline{Z}) + \overline{Y}
\]

3. Boolean Algebra

List all ordered pairs (A, B) that make the following expression TRUE.

\[
\overline{A} + AB + \overline{AB}
\]

4. Bit String Flicking

Evaluate

\[
(\text{LSHIFT} - 2 \ (\text{LCIRC} - 2 \ (\text{RSHIFT} - 1 \ 10100 )))
\]

5. Bit String Flicking

How many different values of X (5 bits long) satisfy the following equation?

\[
00110 \ OR \ X = 10110
\]