

**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

$$\bar{X}(X + \bar{Y}) + \bar{Y}(\bar{Y} + \bar{Z}) + \bar{Y}$$

**3. Boolean Algebra**

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

$$\bar{A} + AB + A\bar{B}$$

**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?

$$00110 \text{ OR } X = 10110$$

**6. Computer Number Systems**Solve for  $X_2$ 

$$X_2 = A12_{16} - 567_8$$

**7. Boolean Algebra**

Simplify completely

$$(\overline{X} + Y)(\overline{X} + \overline{Y})$$

**8. Boolean Algebra**

List all ordered triples (A,B,C) that make the following expression FALSE

$$\overline{AB} + A(\overline{B + C})$$

**9. Bit String Flicking**

Evaluate

$$(\text{RSHIFT}-2 (\text{RCIRC}-8 (\text{RSHIFT}-2 (10011))))$$

**10. Bit String Flicking**

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

$$(\text{RSHIFT}-1 X) \text{ OR } 10110 \text{ AND } 00101 = 00101$$