

Solution 2

Module 2: Bits and Bytes

1.

Answer:

8 bits · 128 · 1 · 256 · 65 · 'A'

Explanation: 01000001 has bits ON at position 64 and position 1. $64 + 1 = 65 = \text{ASCII 'A'}$.

2.

Answer:

a) $B = 1011$, $4 = 0100 \rightarrow$ binary 10110100

b) $B \times 16 + 4 = 11 \times 16 + 4 = 176 + 4 = 180$

3. **Answer:**

1–C ($8+2 = 10$)

2–A (all 8 bits ON = $128+64+32+16+8+4+2+1 = 255$)

3–B (only the leftmost bit ON = 128)

4–E ($8+4+2+1 = 15$)

5–D ($128+64+8+4 = 204$)

4. **Answer:**

B) Every value in a computer is ultimately stored as a pattern of bits, transistors that are ON (1) or OFF (0).

The decimal 23.5 would be encoded as a binary float, stored as a sequence of bits in RAM