D FLIP-FLOP WITH LOAD

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1. CHECK YOUR UNDERSTANDING (1 point possible)

Which of the following statements properly describe the operation of a positive edge-triggered D flip-flop designed using back-to-back D latches? [Check all that apply]

- [x] When the clock is 0, the first latch is closed and the second is open.
- [ ] When the clock is 1, both latches are open.
- [x] When the clock transitions from 1 to 0, the input value appears at the flip-flop output.
- [ ] None of the above. ✔

EXPLANATION

None of the statements are true. When the clock is 0, the first latch is open and the second is closed. When the clock is 1, only the second latch is open. When the clock transitions from 1 to 0, the input only passes through the first latch. It passes through the second latch to the output when the clock subsequently transitions from 0 to 1 (the triggering edge).

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