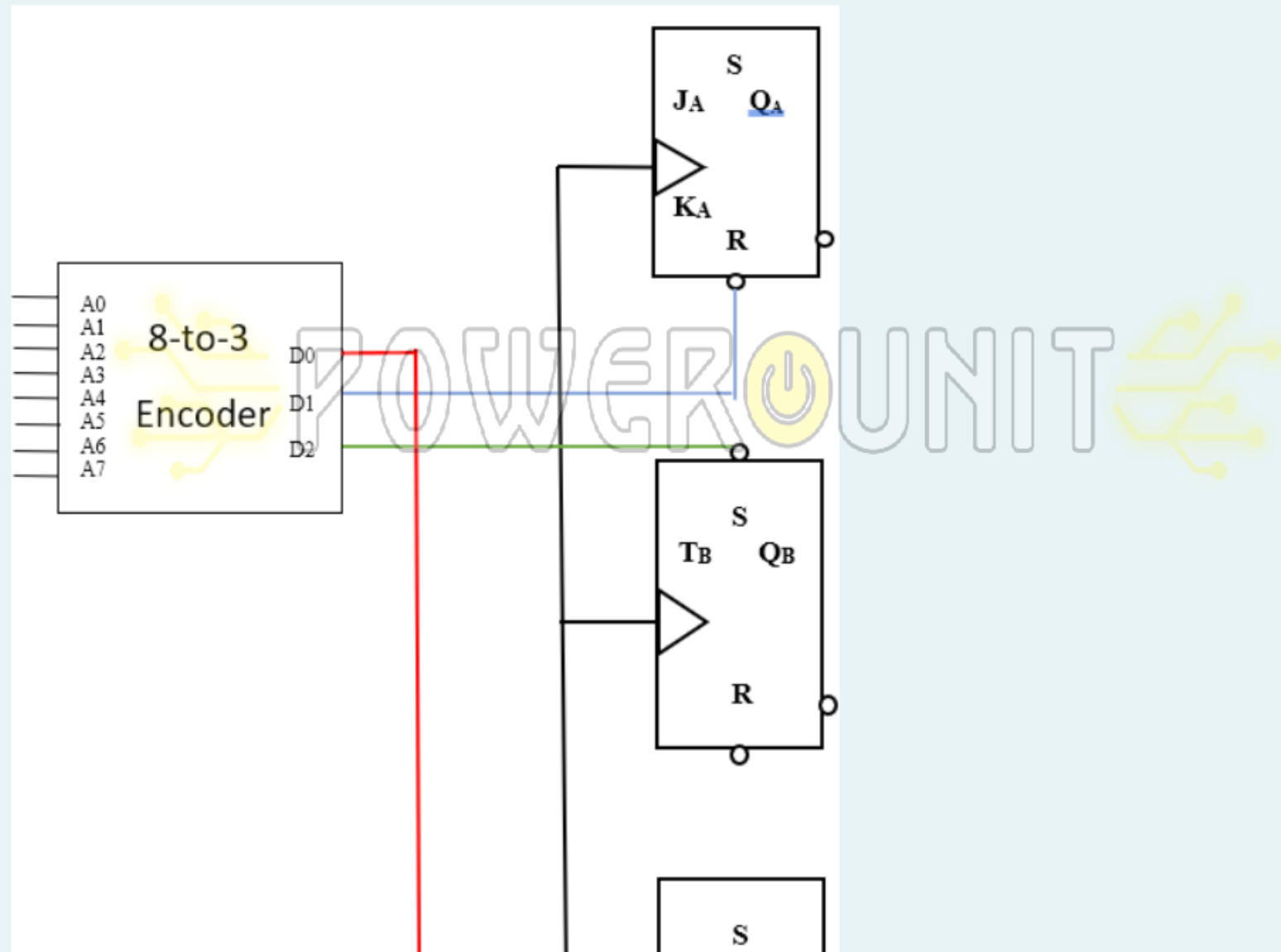


Question 1
Not yet answered
Marked out of 3.00
Flag question

What should be the pattern applied at the inputs of the encoder ($A_7A_6A_5A_4A_3A_2A_1A_0$) such that the States ABC = 010?

$(A_7A_6A_5A_4A_3A_2A_1A_0) =$



Question 2

Not yet
answeredMarked out of
2.00Flag
question

Time left 1:08:42

Select the maxterms of the function F when expressed using their input variables?

$$F(A, B, C, D, E) = \prod_M (3, 12, 24, 29)$$

Select one or more:

- A'B'C'DE
- A'+B'+C'+D+E
- C+D+E
- A'+B'+C+D+E
- B'+C'+D+E
- A+B'+C'+D+E
- A+B+C+D'+E
- ABCD'E
- A'BCD'E'
- A+B+C'+D'+E'
- A+B+C+D'+E'
- A'+B+C+D'+E'
- A'+B'+C'+D+E'
- ABC'D'E'

Question 3

Not yet
answeredMarked out of
4.00Flag
question

Answer the following short questions:

- The radix complement of the number $(101)_6$ is
- The diminished radix complement of the number $(101)_3$ is
- The 8-bit representation for +44 in 2's complement system is
- The minimum value for a 8-bit binary number represented in signed magnitude format is

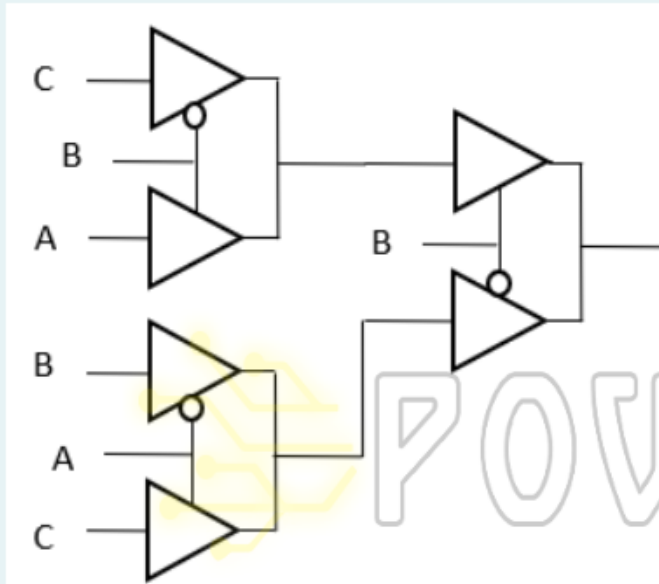
Question 4

Not yet answered

Marked out of 3.00

Flag question

The output of the following tristate buffer circuit in its simplest form is:



- $A(B + C')$
 None of the other options
 $A(B' + C')$
 $A(B + C)$
 $B + C$

Question 5

Not yet answered

Marked out of 6.00

Flag question

The following state table is used to derive and solve for the equations of a sequential state machine. Identify and fill in the values of S_B and R_B that control the SR flip flop of State B. Then, formulate and solve for the **optimized** SOP equation of both S_B and R_B , and answer the questions that follow:

| Present State | | Input | Next State | | | |
|---------------|------|-------|------------|--------|----------------------|----------------------|
| A(t) | B(t) | X | A(t+1) | B(t+1) | S_B | R_B |
| 0 | 0 | 0 | 1 | 0 | <input type="text"/> | <input type="text"/> |
| 0 | 0 | 1 | 0 | 1 | <input type="text"/> | <input type="text"/> |
| 0 | 1 | 0 | 0 | 1 | <input type="text"/> | <input type="text"/> |
| 0 | 1 | 1 | 1 | 0 | <input type="text"/> | <input type="text"/> |
| 1 | 0 | 0 | 0 | 1 | <input type="text"/> | <input type="text"/> |
| 1 | 0 | 1 | 1 | 0 | <input type="text"/> | <input type="text"/> |
| 1 | 1 | 0 | 1 | 0 | <input type="text"/> | <input type="text"/> |
| 1 | 1 | 1 | 0 | 1 | <input type="text"/> | <input type="text"/> |

S_B can be implemented using one of the following:

The GN cost for R_B is

Question 6

Not yet answered

Marked out of 4.00

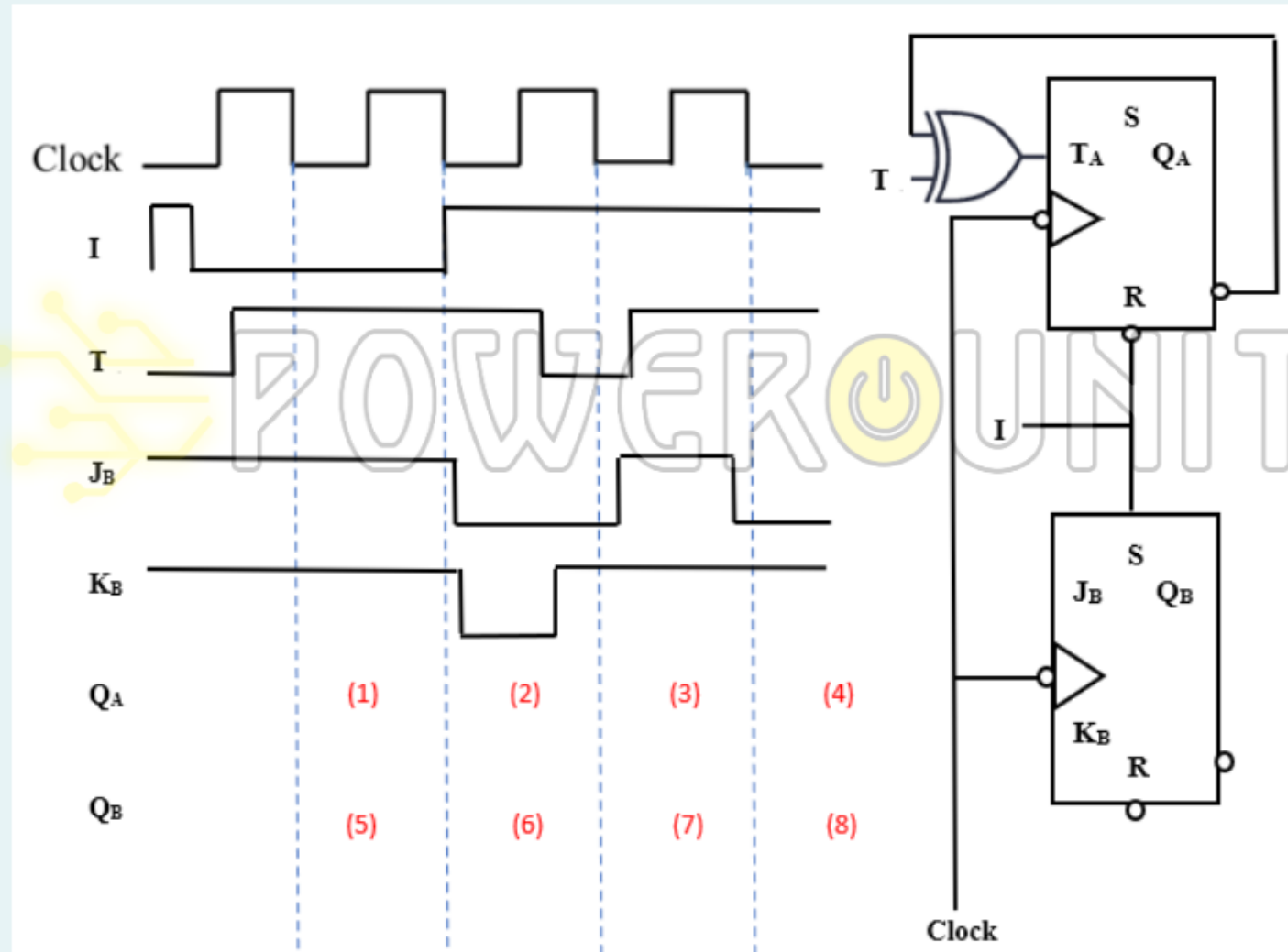
Flag question

Time left 0:38:28

The waveform given below is associated with the inputs to the two flip-flops shown on the right. Notice that the flip-flops are negative-edge triggered.

What are the values for the signals Q_A and Q_B in each of the regions (1) through (8) shown in red?

Hint: The initial values should be determined using the asynchronous signal "I".



Region (1)

Q_B

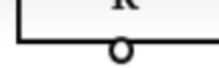
(5)

(6)

(7)

(8)

Clock



Time left 0:38:26

Region (1)

Region (2)

Region (3)

Region (4)

Region (5)

Region (6)

Region (7)

Region (8)



Next page

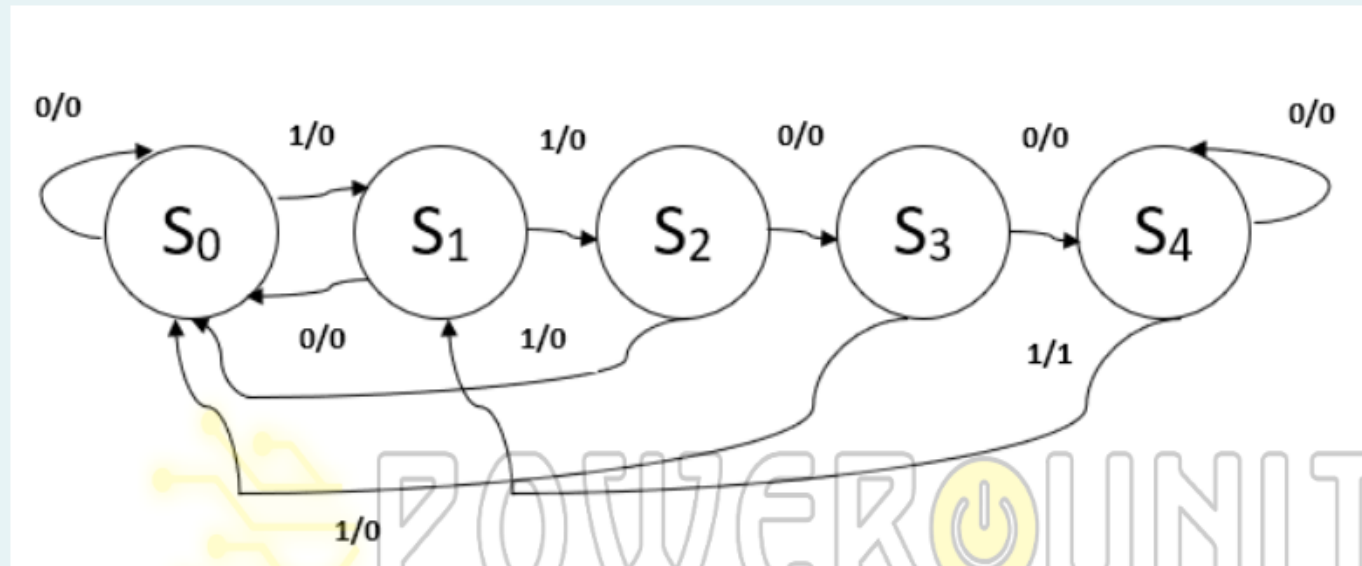
Question 7

Not yet answered

Marked out of 4.50

Flag question

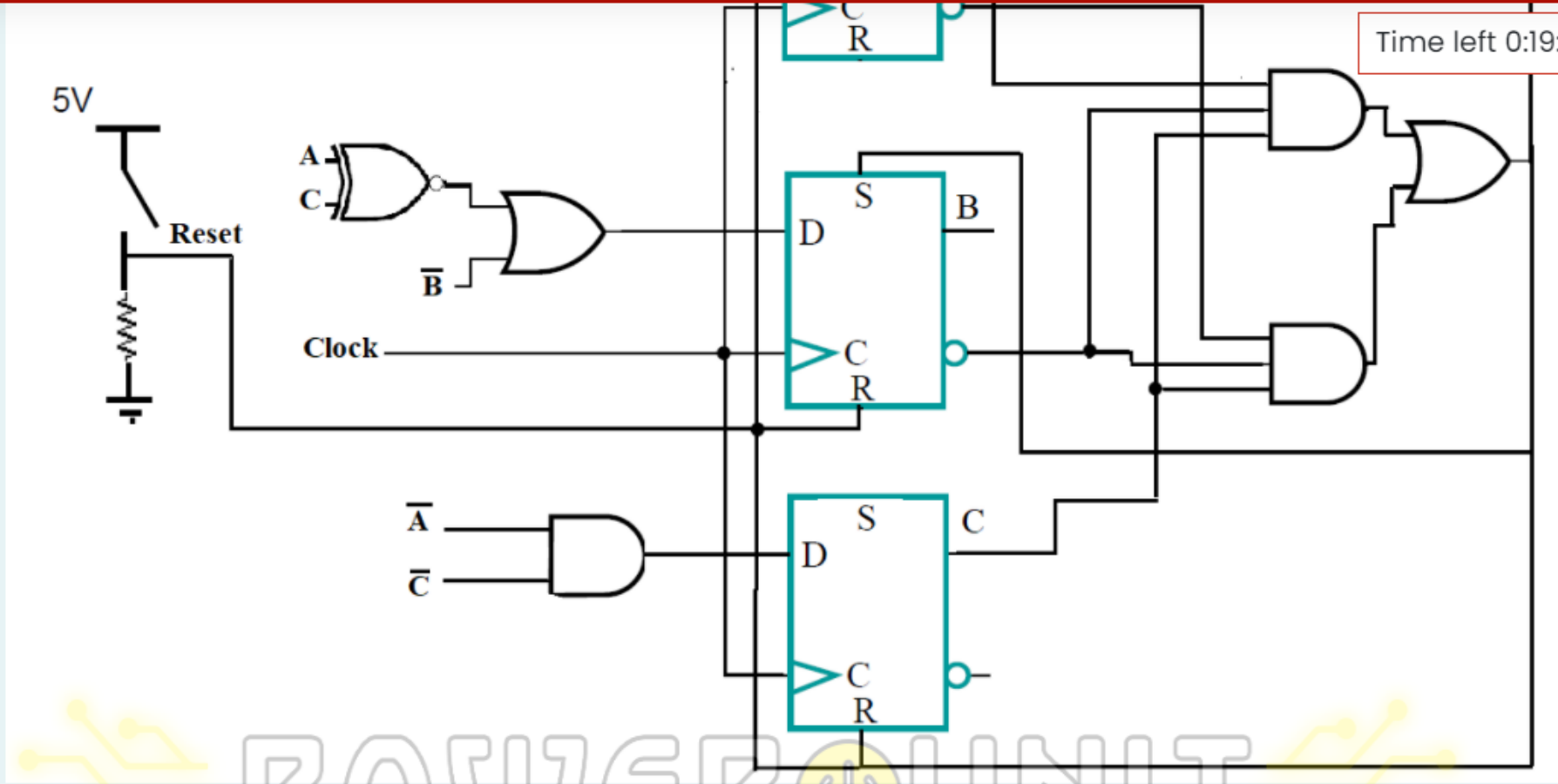
Consider the given Mealy state diagram of a sequence detector circuit that has 1-bit serial input X , and 1-bit output Z . Assume the detector is initialized to S_0 .



The length of the sequence being detected is

The sequence being detected is

Does this state machine allow for the detection of overlapping sequences?



What is the initial state ABC of the circuit (when reset =1)?

What are the unused states (ABC) of the circuit?

To which state (ABC) does the circuit change asynchronously when in one of the unused states?

To which state does the circuit change if the current state ABC is 110 at the positive edge of the clock?

Question 9

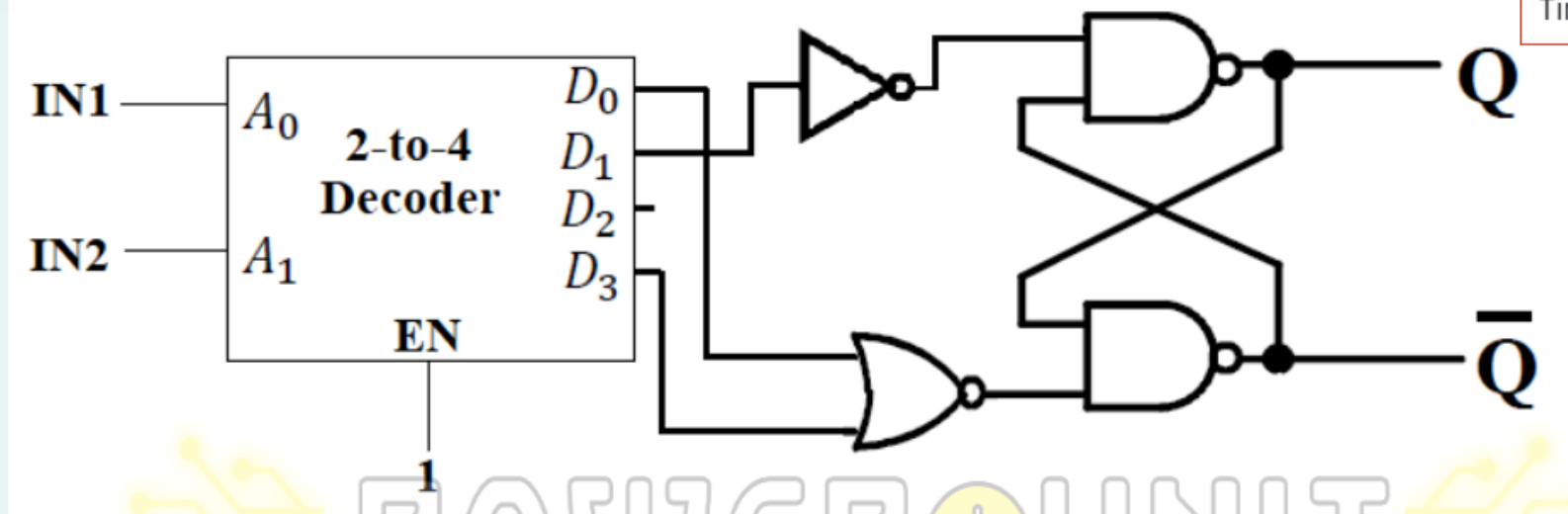
Not yet answered

Marked out of 4.00

Flag question

In order to design a sequential circuit that counts from 0 to 6, answer the questions below in each of the following cases:

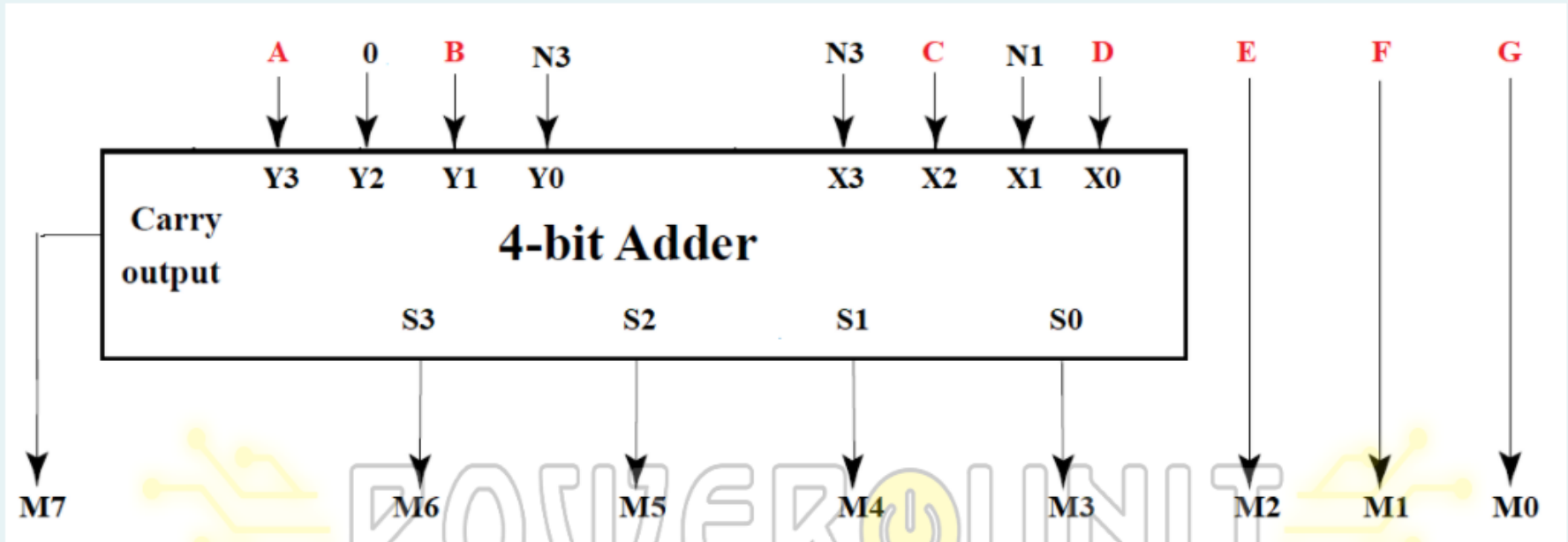
First case: using counting order case assignment:1. What is the minimum number of flip-flops required? 2. How many unused states are there? **Second case: using one-hot case assignment:**1. What is the minimum number of flip-flops required? 2. How many unused states are there?



Circuit type with respect to clock: Negative-pulse triggered

| IN2 | IN1 | Operation |
|-----|-----|-----------|
| 0 | 0 | Reset |
| 0 | 1 | Set |
| 1 | 0 | Hold |
| 1 | 1 | Reset |

Specify what values must be filled in place of the letters A, B, C, D, E, F, and G such that the following multiplies the 4-bit number $N(3:0)$ by 9 producing the 8-bit number $M(7:0)$.

A: B: C: D: E: F: G:

Question 12

Not yet
answeredMarked out of
3.00Flag
question

What is the **minimum** number of binary bits needed to represent the number 0x1F54?

- 12
- 11
- 10
- 8
- 13
- 9



Question 13

Not yet
answeredMarked out of
4.00Flag
question

Which of the following mathematical operations will result in an overflow OR wrong result?

- $0xBD - 0xCF$ (The numbers are in unsigned format)
- $0xF9 + 0x12$ (The numbers are in unsigned format)
- $0x1F + 0x2C$ (The numbers are in unsigned format)
- $0xDA - 0xB5$ (The numbers are in unsigned format)

Finish attempt ...