# PROBLEMA 1

## Black-Box

QC

S

QB

QA

semáforo doble vía

## Diagrama de estados

1 estado por cada 10 segundos

## Imagen que contiene objeto, collar, lámpara Descripción generada automáticamente

40 seg

10 seg

30 seg

## No. Y tipo de Flip-Flops

## Asignación de valores a los estados

|  |  |  |  |
| --- | --- | --- | --- |
| Estado | QA | QB | QC |
| S0 | 1 | 0 | 0 |
| S1 | 0 | 1 | 0 |
| S2 | 0 | 0 | 1 |

## Tabla de excitación

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Estado presente | | | Estado siguiente | | | A | | B | | C | | | |
| J | **QA** | **QB** | **QC** | **QA+1** | **QB+1** | **QC+1** | **JA** | **KA** | **JB** | **KB** | | **JC** | **KC** |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | X | 0 | X | | 0 | X |
| 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | X | 0 | X | | X | 1 |
| 2 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | X | X | 1 | | 0 | X |
| 3 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | X | X | 0 | | X | 1 |
| 4 | 1 | 0 | 0 | 0 | 0 | 1 | X | 1 | 0 | X | | 1 | X |
| 5 | 1 | 0 | 1 | 0 | 0 | 1 | X | 1 | 0 | X | | X | 0 |
| 6 | 1 | 1 | 0 | 0 | 0 | 1 | X | 1 | X | 1 | | 1 | X |
| 7 | 1 | 1 | 1 | 0 | 0 | 0 | X | 1 | X | 1 | | X | 1 |

## Articulación Algebraica

JA = ¬QB+¬QC

KA= 1

JB = QA\*QB

KB = ¬QC + QA

JC =QA

KC = ¬QA +QB

## Diagrama Digital

