1. Combinational circuits are act upon immediate inputs give output base on those input. In other hand Sequential take previous state of the circuit as input the circuit.

2. Latch is sequential circuits where output of the circuit changes instantly when input changes. But in flipflops state changes in synchronously with a control signal(clock). So output doesn’t changes instantly on input, it does when control signal goes from high to low or low to high.

3 (e).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | S | R | Q(t) | Q(t+1) |
| Step 1, from step 2 | 1 | 0 | Undefined, 1 | 1 |
| Step 2 | 0 | 0 | 1 | 1 |
| Step 3 | 0 | 1 | 1 | 0 |
| Step 4 | 1 | 1 | 0 | Undefined |
| Step 5, from step 6 | 0 | 1 | Undefined, 1 | 0 |
| Step 6 | 0 | 0 | 0 | 0 |
| Step 7 | 1 | 0 | 0 | 1 |
| Step 8 | 1 | 1 | 1 | Undefined |

5 (d).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | S | R | Q(t) | Q(t+1) |
| Step 1, from step 2 | 1 | 0 | Undefined, 1 | 1 |
| Step 2 | 0 | 0 | 1 | 1 |
| Step 3 | 0 | 1 | 1 | 0 |
| Step 4 | 1 | 1 | 0 | Q(t+1)’ |
| Step 5, from step 6 | 0 | 1 | Undefined, 1 | 0 |
| Step 6 | 0 | 0 | 0 | 0 |
| Step 7 | 1 | 0 | 0 | 1 |
| Step 8 | 1 | 1 | 1 | Q(t+1)’ |