**Self-Assessment 8**

8. Starting from an initial value in a register of 11000110, determine the binary values in the register after each of the following shifts are performed in the indicated sequence:

|  |  |
| --- | --- |
| Initial value | 1 1 0 0 0 1 1 0 |

1. ROTATE LEFT
2. LOGICAL SHIFT RIGHT
3. ROTATE RIGHT
4. LOGICAL SHIFT LEFT
5. ARITHMETIC SHIFT RIGHT

**Answer**

***Please maximize your window to see the answer more clearly.***

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Initial value | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 |  | |  |
| 1. | | | | | | | | | | | |
| ROTATE LEFT | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  |  | 1 | 0 | 0 | 0 | 1 | 1 | 0 | **1** | | The leftmost 1 was moved to the rightmost position. |  |  |  |  |  |  |  |  |  |
| 2. | | | | | | | | | | | |
| LOGICAL SHIFT RIGHT | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | **0** | 1 | 0 | 0 | 0 | 1 | 1 | 0 |  | | The rightmost 1 was dropped and a 0 was added in the leftmost position. |  |  |  |  |  |  |  |  |  |
| 3. | | | | | | | | | | | |
| ROTATE RIGHT | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **0** | 0 | 1 | 0 | 0 | 0 | 1 | 1 |  |  | | The rightmost 0 was moved to the leftmost position. |  |  |  |  |  |  |  |  |  |
| 4. | | | | | | | | | | | |
| LOGICAL SHIFT LEFT | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | 0 | 1 | 0 | 0 | 0 | 1 | 1 | **0** |  | | The leftmost 0 was dropped and a 0 was added in the rightmost position. |  |  |  |  |  |  |  |  |  |
| 5. | | | | | | | | | | | |
| ARITHMETIC SHIFT RIGHT | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **0** | 0 | 1 | 0 | 0 | 0 | 1 | 1 |  |  | | The rightmost 0 was dropped and the leftmost 0 was copied into the new leftmost position. |  |  |  |  |  |  |  |  |  |