**Manual Motor Controls CLO# 2**

**Boolean Logic Examples**

**= Logic**

Q = A

|  |  |
| --- | --- |
| A | Q |
| 0 | 0 |
| 1 | 1 |



**NOT Logic**

Q = A, Q = A

|  |  |
| --- | --- |
| A | Q |
| 0 | 1 |
| 1 | 0 |



**OR Logic**

Q = A or B, Q = A + B

|  |  |  |
| --- | --- | --- |
| A | B | Q |
| 0 | 0 | 0 |
| 1 | 0 | 1 |
| 0 | 1 | 1 |
| 1 | 1 | 1 |



**AND Logic**

Q = A and B, Q = A x B, Q = A·B, Q = AB

|  |  |  |
| --- | --- | --- |
| A | B | Q |
| 0 | 0 | 0 |
| 1 | 0 | 0 |
| 0 | 1 | 0 |
| 1 | 1 | 1 |



**NOR Logic**

Q = A or B, Q = A + B

|  |  |  |
| --- | --- | --- |
| A | B | Q |
| 0 | 0 | 1 |
| 1 | 0 | 0 |
| 0 | 1 | 0 |
| 1 | 1 | 0 |



**NAND Logic**

Q = A and B, Q = A x B, Q = A·B, Q = AB

|  |  |  |
| --- | --- | --- |
| A | B | Q |
| 0 | 0 | 1 |
| 1 | 0 | 1 |
| 0 | 1 | 1 |
| 1 | 1 | 0 |



**XOR Logic**

Q = A  B

|  |  |  |
| --- | --- | --- |
| A | B | Q |
| 0 | 0 | 0 |
| 1 | 0 | 1 |
| 0 | 1 | 1 |
| 1 | 1 | 0 |



**XAND Logic (sometimes termed XNOR)**

Q = A  B

|  |  |  |
| --- | --- | --- |
| A | B | Q |
| 0 | 0 | 1 |
| 1 | 0 | 0 |
| 0 | 1 | 0 |
| 1 | 1 | 1 |

