## Arduino Code:

### First Arrangement:

# byte A, B, C, D;

# void setup() {

# for ( byte i = 3; i <= 13; i++)

# pinMode(i, i < 7 ? INPUT : OUTPUT);

# pinMode(A0, OUTPUT), pinMode(A1, OUTPUT), pinMode(A2, OUTPUT), pinMode(A3, OUTPUT), pinMode(A4, OUTPUT), pinMode(A5, OUTPUT);

# }

# void loop() {

# A = digitalRead(3), B = digitalRead(4), C = digitalRead(5), D = digitalRead(6);

# digitalWrite(7, (A || B || C || !D)), digitalWrite(8, (A || !(B ^ D) || C));

# digitalWrite(10, (A || (!B && !D) || (!B && C) || (C && !D) || (B && !C && D)));

# digitalWrite(11, ((A && !C) || (!A && !B && !D) || (D && (B ^ C)) || (B && C && !D)));

# digitalWrite(12, (!A || !B || !D)), digitalWrite(A0, !(D ^ A) || (B ^ C) || (C && !D));

# digitalWrite(13, (A || (!C && !D) || (B && !C) || (B && !D))), digitalWrite(9, (!A || !B || !D || C));

# digitalWrite(A1, (!B && !D) || (C && !D) || (A && C) || (A && B)), digitalWrite(A2, (!B && C) || (C && !D) || (A && !B) || (A && C) || (!A && B && !C));

# digitalWrite(A3, !B || (!A && !(C ^ D)) || (A && !C && D)), digitalWrite(A4, !A || D || C), digitalWrite(A5, (!A && !C) || (!A && D) || (!C && D) || (A ^ B));

# }

### Second Arrangement:

### byte A, B, C, D;

### void setup() {

### for ( byte i = 2; i <= 12; i++)

### pinMode(i, i < 9 ? OUTPUT : INPUT);

### }

### void loop() {

### A = digitalRead(9), B = digitalRead(10), C = digitalRead(11), D = digitalRead(12);

### digitalWrite(2, (!B && !D) || (B && C) || (!A && C) || (A && !D) || (!A && B && D) || (A && !B && !C));

### digitalWrite(3, ((!A && !B) || (!B && !C) ) || (!B && !D) || (!A && !C && !D) || (!A && C && D) || (A &&(C ^ D)));

### digitalWrite(4, ((!A && !C) || (A && !B) || (!A && D) || (!C && D) || (!A && B)));

### digitalWrite(5, ((!B && C) || (!A && B && !C) || (C && !D) || (A && D) || (A && !B)));

### digitalWrite(6, (B && !C && D) || (!B && !D) || (!B && C) || (C && !D) || (A && !C));

### digitalWrite(7, (!B && !D) || (A && B) || (C && !D) || (A && C));

### digitalWrite(8, ((!C && !D) || (B && !D) || (A && C && D) || (!A && B && !C) || (A && !B && !C)));

### }