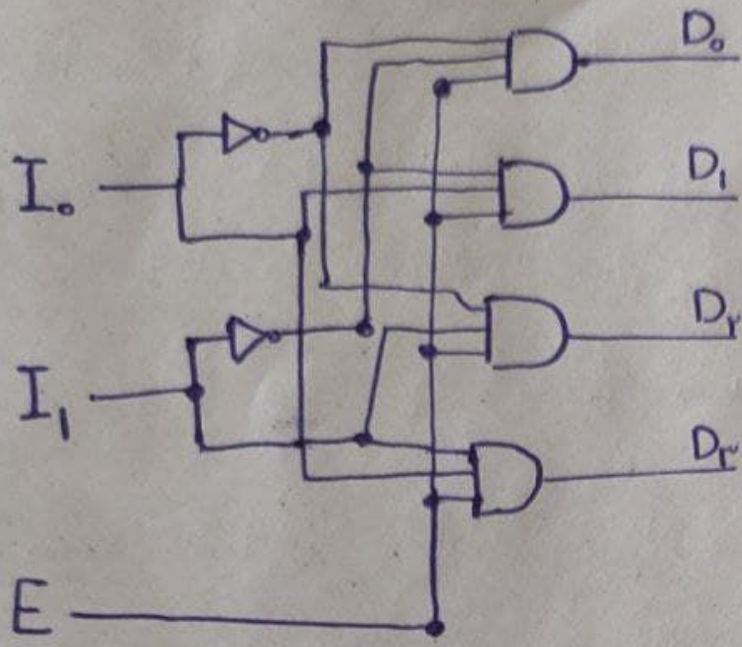
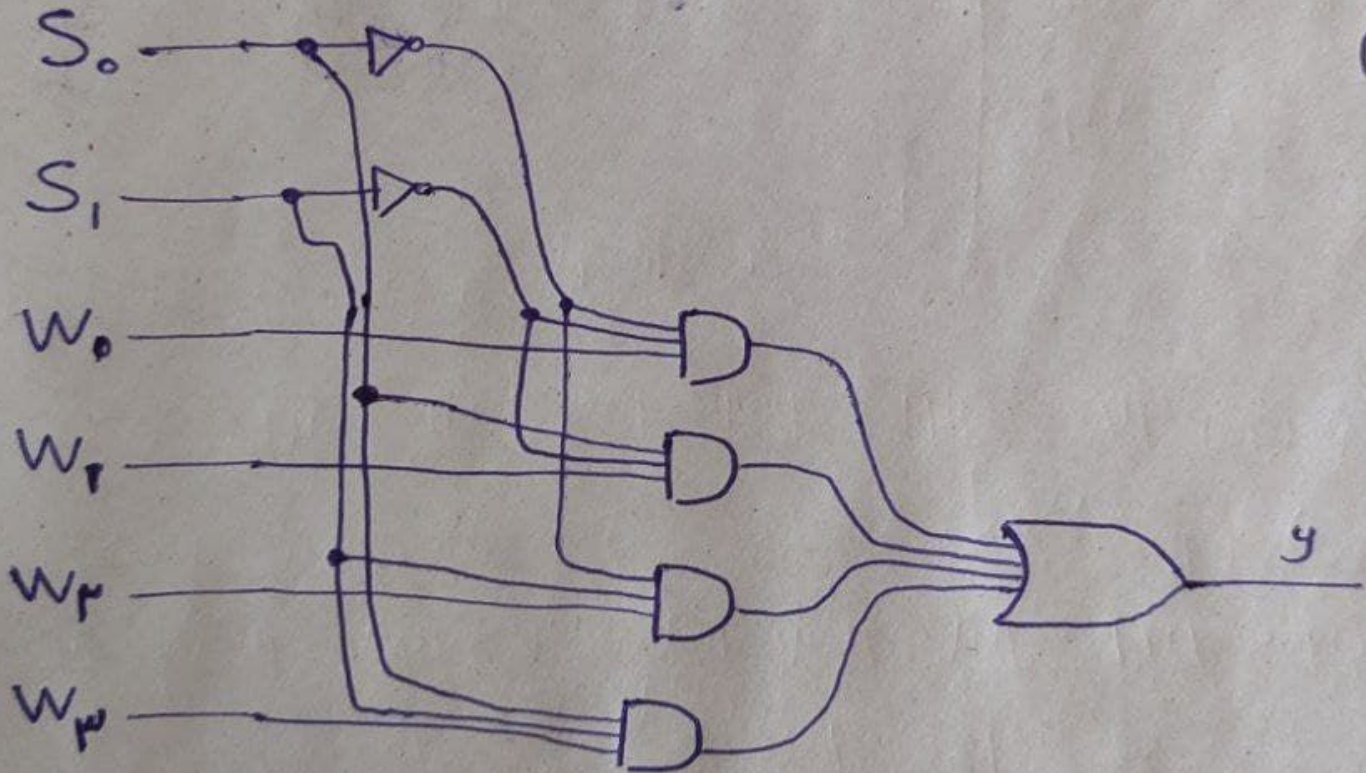


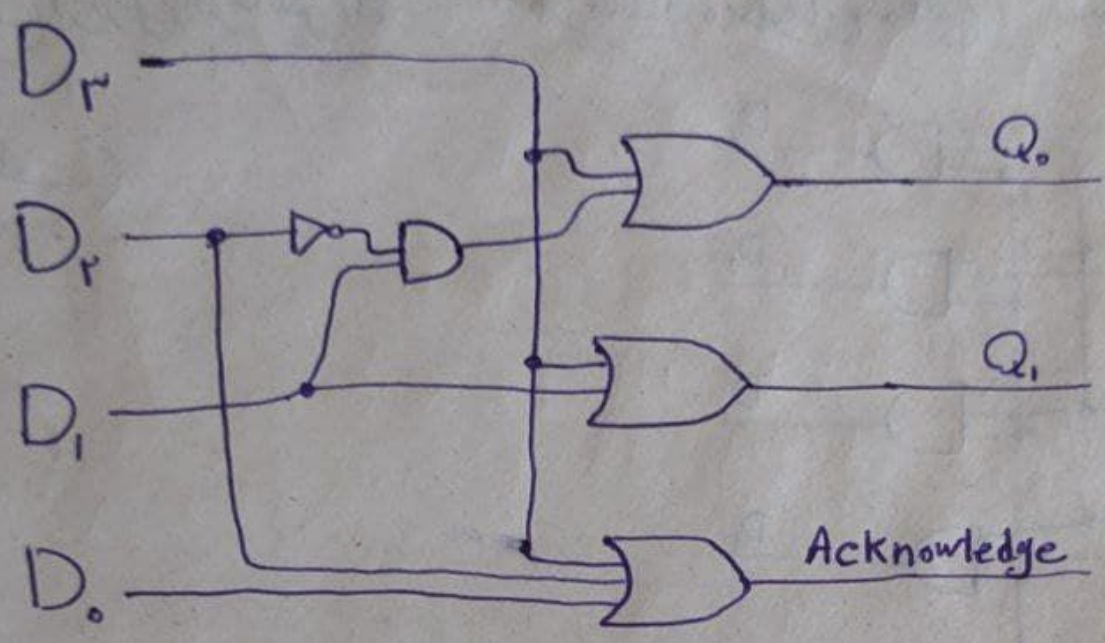
(الف)



(ب)







(الف)

```
module Decoder2X4(I1,I0,En,D);
input I1,I0,En;
wire I1_not,I0_not;
output [0:3] D;
not n1(I0_not,I0);
not n2(I1_not,I1);
and a1(D[0],I1_not,I0_not,En);
and a2(D[1],I1_not,I0,En);
and a3(D[2],I1,I0_not,En);
and a4(D[3],I1,I0,En);
endmodule
```

(ب)

```
module Mux4X1(w,s,y);
input[0:3] w;
input[0:1] s;
wire[0:1] s_not;
wire[0:3] ands;
output y;
not n1(s_not[0],s[0]);
not n2(s_not[1],s[1]);
and a1(ands[0],s_not[0],s_not[1],w[0]);
and a2(ands[1],s_not[0],s[1],w[1]);
and a3(ands[2],s[0],s_not[1],w[2]);
and a4(ands[3],s[0],s[1],w[3]);
or o1(y,ands[0],ands[1],ands[2],ands[3]);
endmodule
```

(ج)

```
module PriorityEncoder4X2(D,Q,A);
input [0:3] D;
output [0:1] Q;
output A;
wire D2_not;
wire D1_and_D2_not;
not n1(D2_not,D[2]);
and a1(D1_and_D2_not,D2_not,D1);
or o1(Q[0],D[3],D1_and_D2_not);
or o2(Q[1],D[3],D[2]);
or o3(A,D[3],D[2],D[1],D[0]);
endmodule
```