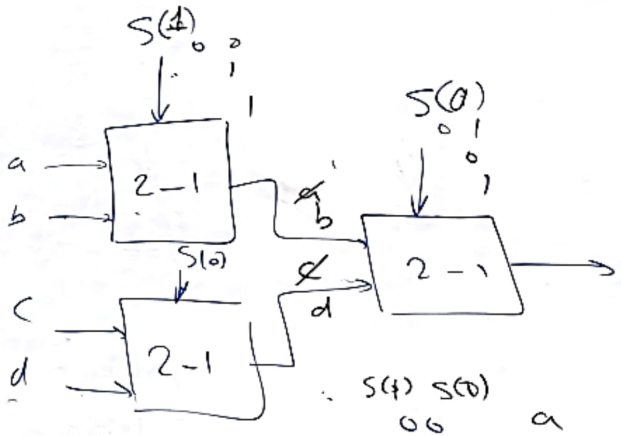
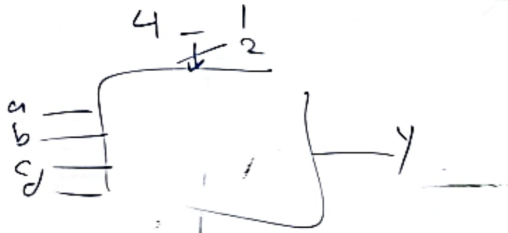
information source

```
with sel select
y <= a when "00",
     b when "01",
     c when "10",
     d when "11",
     a when others;
```



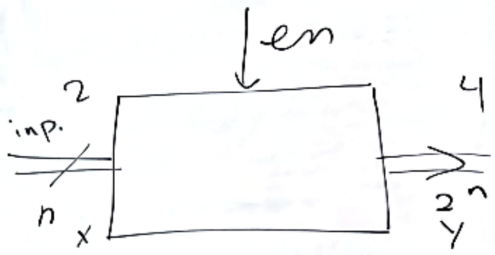
16
2^4



information source

Decoder

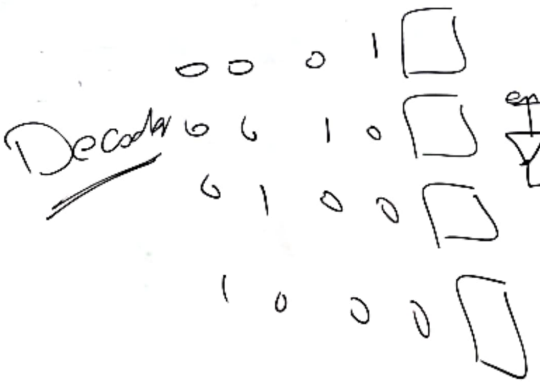
Dec 2-4

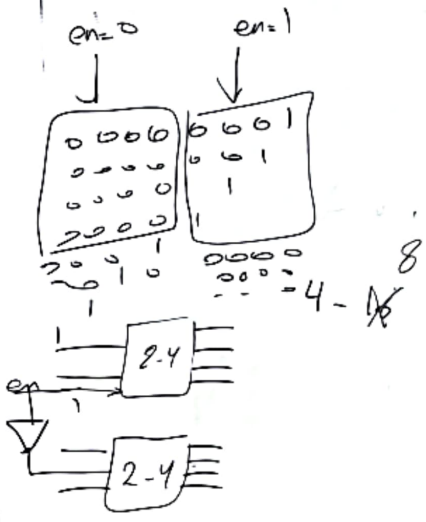


X	Y
0 0	0 0 0 1
0 1	0 0 1 0
1 0	0 1 0 0
1 1	1 0 0 0

```
entity decoder2-4 is
    Port( X: in std_logic_vector(1 downto 0);
          Y: out std_logic_vector (3 downto 0);
          en: in std_logic);
          end decoder 2-4;

Process (x, en)
  begin
  if (en='1') then
  if ( X="00") then
       y<="0001";
elsif (X="01") then
       y<="0010";
elsif ( x="10") then
       y<="0100";
 else      "  "
       y<="1000";
 endif;
  else  "  "
 endif; y<="0000";
```

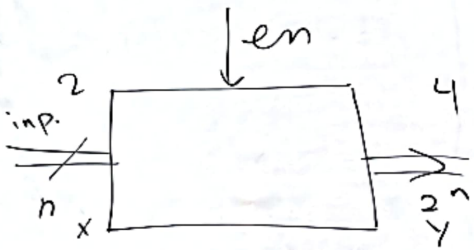




information source

Decoder

Dec 2-4

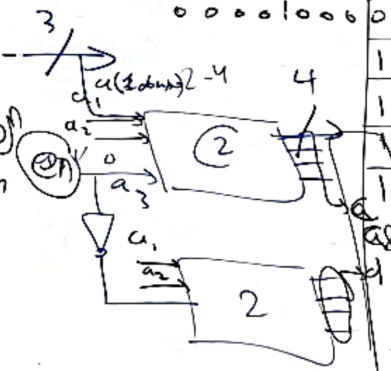


X		Y			
0	0	0	0	0	1
0	1	0	0	1	0
1	0	0	1	0	0
1	1	1	0	0	0

```
entity decoder2-4 is
    Port(X: in std_logic_vector(1 downto 0);
         y: out std_logic_vector (3 downto 0);
         en: in std_logic);
    end decoder 2-4;

Process (x, en)
  begin
  if (en='1') then
    if( X="00") then
        y<="0001";
    elsif (X="01") then
        y<="0010";
    elsif ( X="10") then
        y<="0100";
    else
        y<="1000";
    endif;
  else
    endif; y<="0000";
```

3-8:



0 0 0 0 1 0 0 0

2-4 ①

en	a_2	a_1	y_7	y_6	y_5	y_4	y_3	y_2	y_1	y_0
0	0	0	0	0	0	0	0	0	0	1
0	0	1	0	0	0	0	0	0	1	0
0	1	0	0	0	0	0	0	1	0	0
0	1	1	0	0	0	0	1	0	0	0
1	0	0	0	0	0	1	0	0	0	0
1	0	1	0	0	1	0	0	0	0	0
1	1	0	0	1	0	0	0	0	0	0
1	1	1	1	0	0	0	0	0	0	0

y ②