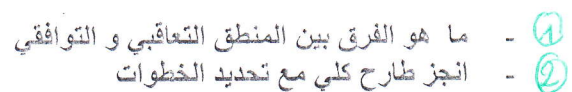


04



06

- 60

- ①

011

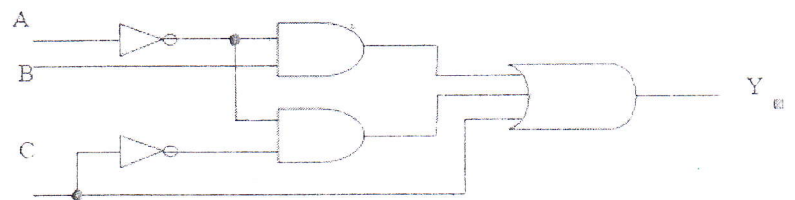
4

011

①②

5

(2)



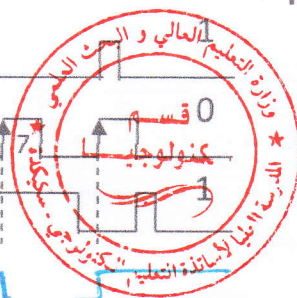
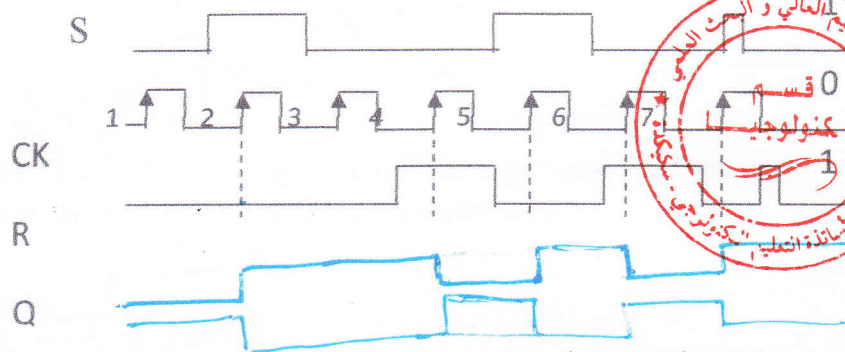
04

- 06

بالتوفيق

الحل النموذجي

تمرين 1 :



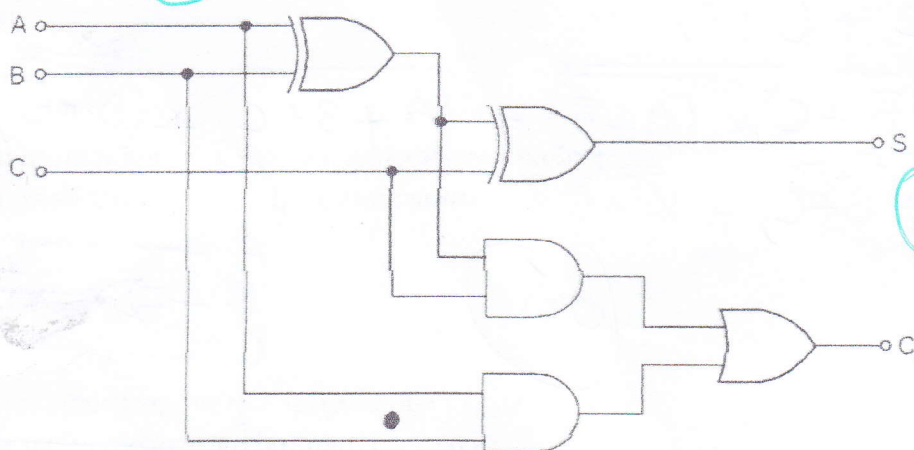
(1)

الفرق بين المنطق المتعاقبي و المتوافقي :
الطراح الكلي :

M	S	B _i	D	B ₀
0	0	0	0	0
0	0	1	1	1
0	1	0	1	1
0	1	1	0	1
1	0	0	1	0
1	0	1	0	0
1	1	0	0	0
1	1	1	1	1

(2)

- $D = M \oplus S \oplus B_i$
- $B_0 = \bar{M}.S + (\bar{M} \oplus S).B_i$



التمرين 2 :

AB \ CD	00	01	11	10
00	1	1	0	0
01	1	1	0	0
11	1	1	0	0
10	1	1	0	0

$$y = \bar{c} \quad (1)$$

AB \ CD	00	01	11	10
00	0	0	1	1
01	0	0	1	1
11	0	0	1	1
10	0	0	1	1

$$y = c \quad (1)$$

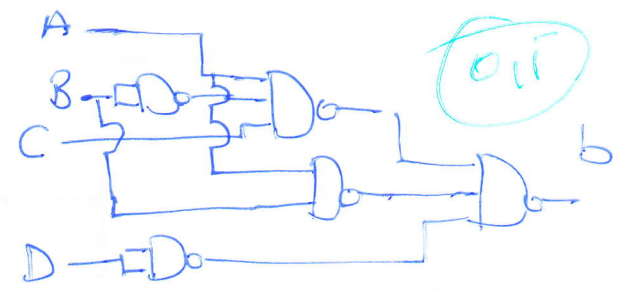
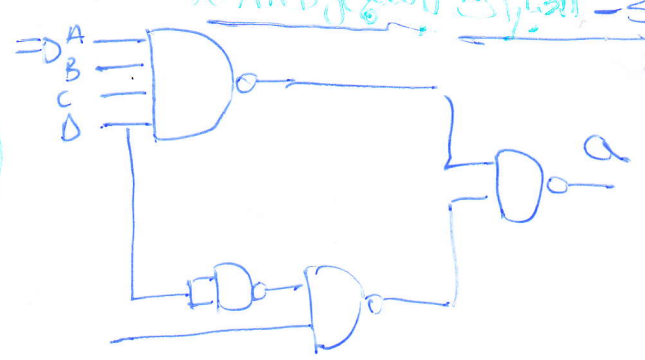
3- الخيارات باستخدام AND

$$1) a = ABCD + \bar{D}E \Leftrightarrow \bar{a} = \overline{ABCD \cdot \bar{D}E}$$

$$2) b = A\bar{B}C + AB + \bar{D}$$

$$\bar{b} = \overline{A\bar{B}C \cdot AB \cdot \bar{D}}$$

OK



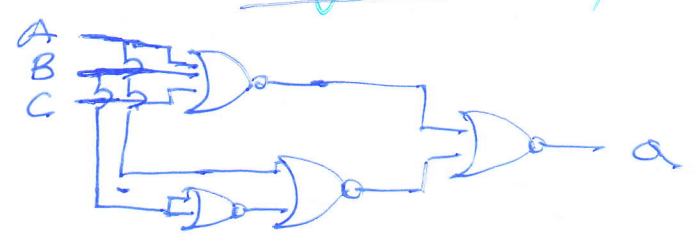
OK

$$1) a = (A+B+C)(A+\bar{B})$$

⇔

$$\bar{a} = \overline{(A+B+C) + A+\bar{B}}$$

OK



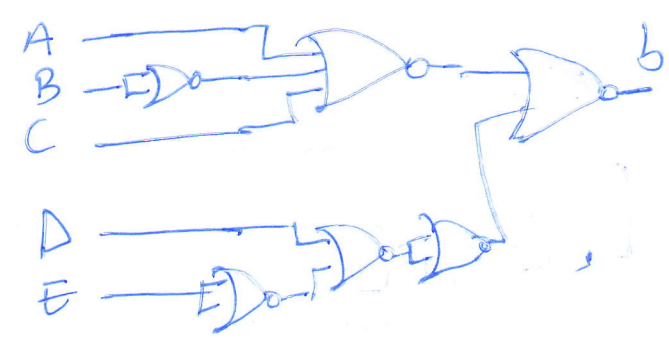
4- الخيارات باستخدام NOR

$$2) b = \overline{A\bar{B}C + (D+\bar{E})}$$

$$\bar{b} = \overline{(A+\bar{B}+C) \cdot (D+\bar{E})} = \overline{(A+\bar{B}+C) + (D+\bar{E})}$$

$$\bar{b} = \overline{(A+\bar{B}+C) + D+\bar{E}}$$

OK



5- القير وجداول الحقيقة المكافئة

$$S = A \oplus B \oplus C$$

A	B	C	S
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	1

$$= \bar{A}\bar{B}C + \bar{A}B\bar{C} + A\bar{B}\bar{C} + ABC$$

A	B	C	y
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	1

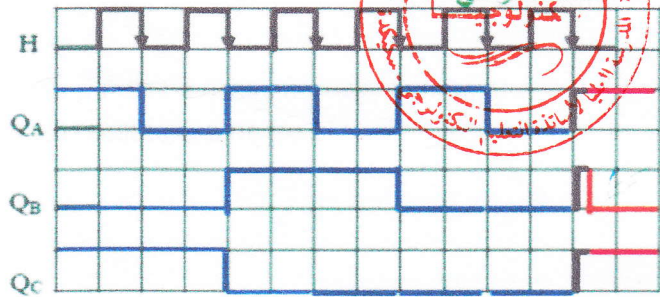
$$y = \bar{A}\bar{B}\bar{C} + \bar{A}\bar{B}C + \bar{A}B\bar{C} + \bar{A}BC + A\bar{B}\bar{C} + ABC$$

المكبرين الثالث :

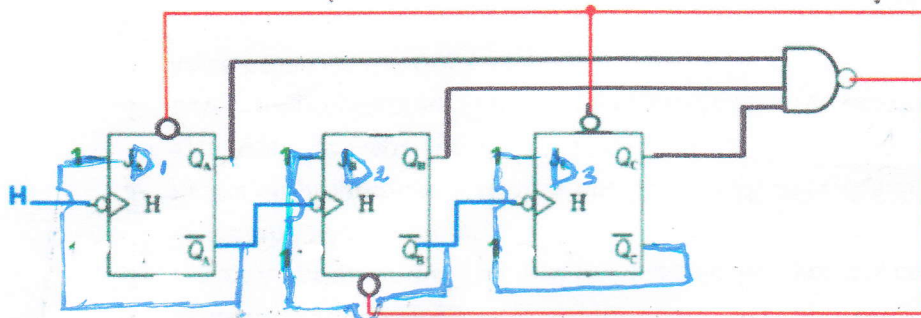
جدول العد :

عشري	Q _C	Q _B	Q _A
5	1	0	1
4	1	0	0
3	0	1	1
2	0	1	0
1	0	0	1
0	0	0	0

أكمل المخطط الزمني التالي وجدول العد :



أكمل ربط دائرة العداد :



إرغام ذاتي

المكبرين الرابع :

حالي	Q ₃	Q ₂	Q ₁	Q ₀	J ₃	K ₃	J ₂	K ₂	J ₁	K ₁	J ₀	K ₀
15	1	1	1	1	X	0	X	0	1	X	X	0
13	1	1	0	1	X	0	1	X	X	1	X	0
9	1	0	0	1	X	0	0	X	1	X	X	0
7	0	1	1	1	1	X	X	1	X	1	X	0
5	0	1	0	1	0	X	X	0	1	X	X	0
3	0	0	1	1	0	X	1	X	X	1	X	0
1	0	0	0	1	1	0	X	0	1	X	X	0

$$J_0 = K_0 = 0$$

$$J_1 = \overline{Q_3} + \overline{Q_2}; K_1 = 1$$

$$J_2 = K_2 = \overline{Q_1}$$

$$J_3 = \overline{Q_1} \overline{Q_2}; K_3 = \overline{Q_2}$$

