

PROVA SEM CONSULTA

DURAÇÃO 90 MINUTOS

1ª Questão (3,0): Projete um contador síncrono utilizando biestáveis tipo RS (ou CS) que siga a sequência indicada abaixo. Desenhe o circuito completo.

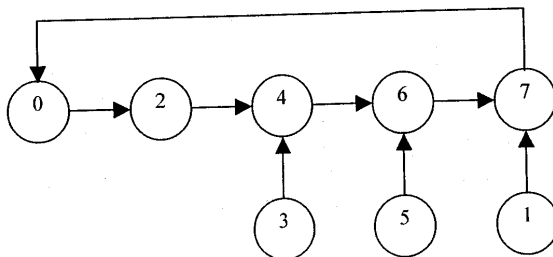


Tabela Transição

	R	S
0 → 0	x	0
0 → 1	0	1
1 → 0	1	0
1 → 1	0	x

	A	B	C	RA	SA	RB	SB	RC	SC
0	0	0	0	x	0	0	1	x	0
1	0	0	1	0	1	0	1	0	x
2	0	1	0	0	1	1	0	x	0
3	0	1	1	0	1	1	0	1	0
4	1	0	0	0	x	0	1	x	0
5	1	0	1	0	x	0	1	1	0
6	1	1	0	0	x	0	x	0	1
7	1	1	1	1	0	1	0	1	0

AB	00	01	11	10
C 0	x	0	0	0
C 1	0	0	1	0

$$RA = ABC$$

AB	00	01	11	10
C 0	0	1	x	x
C 1	1	1	0	x

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

AB	00	01	11	10
C 0	0	0	1	0
C 1	0	1	1	0

$$RB = BC + \bar{A}B$$

AB	00	01	11	10
C 0	1	0	x	1
C 1	1	0	0	1

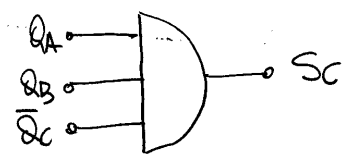
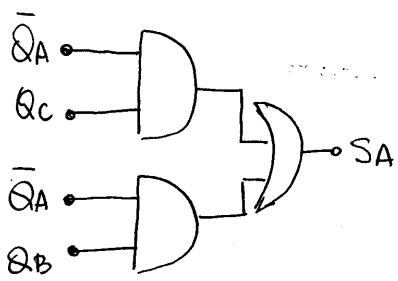
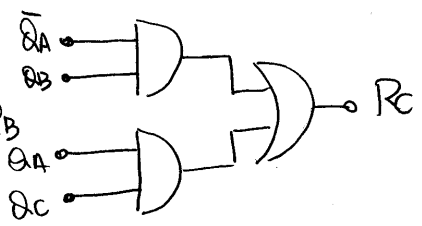
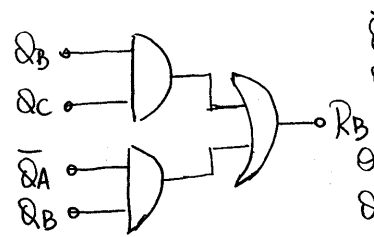
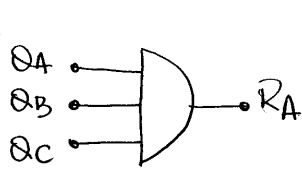
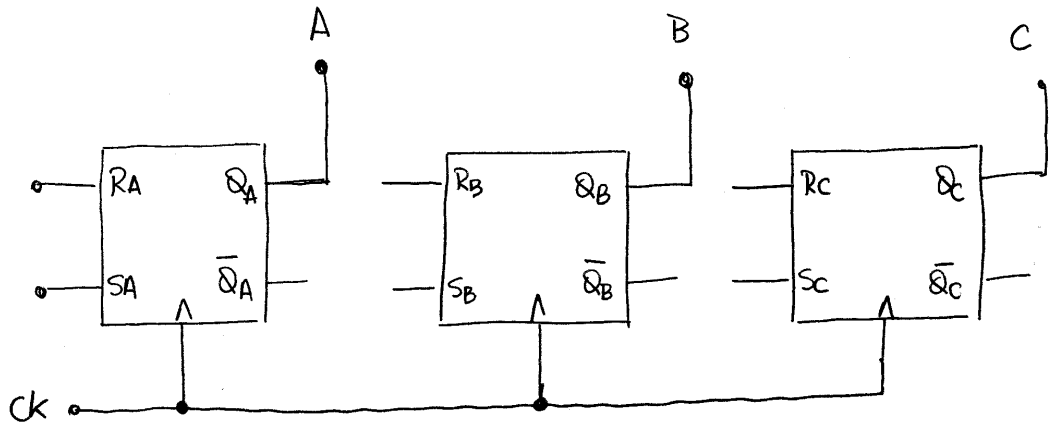
$$SB = \bar{B}$$

AB	00	01	11	10
C 0	x	x	0	x
C 1	0	1	1	1

$$RC = \bar{A}B + AC$$

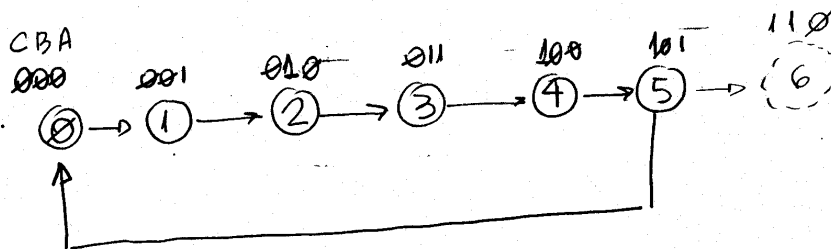
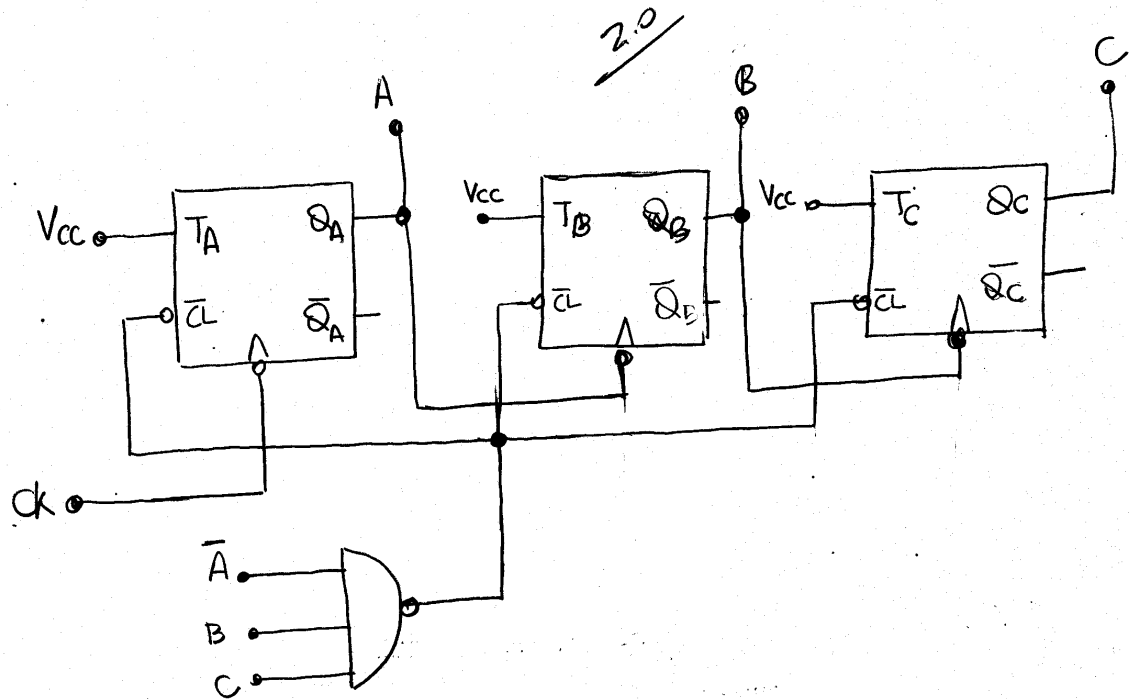
AB	00	01	11	10
C 0	0	0	1	0
C 1	x	0	0	0

$$SC = ABC$$

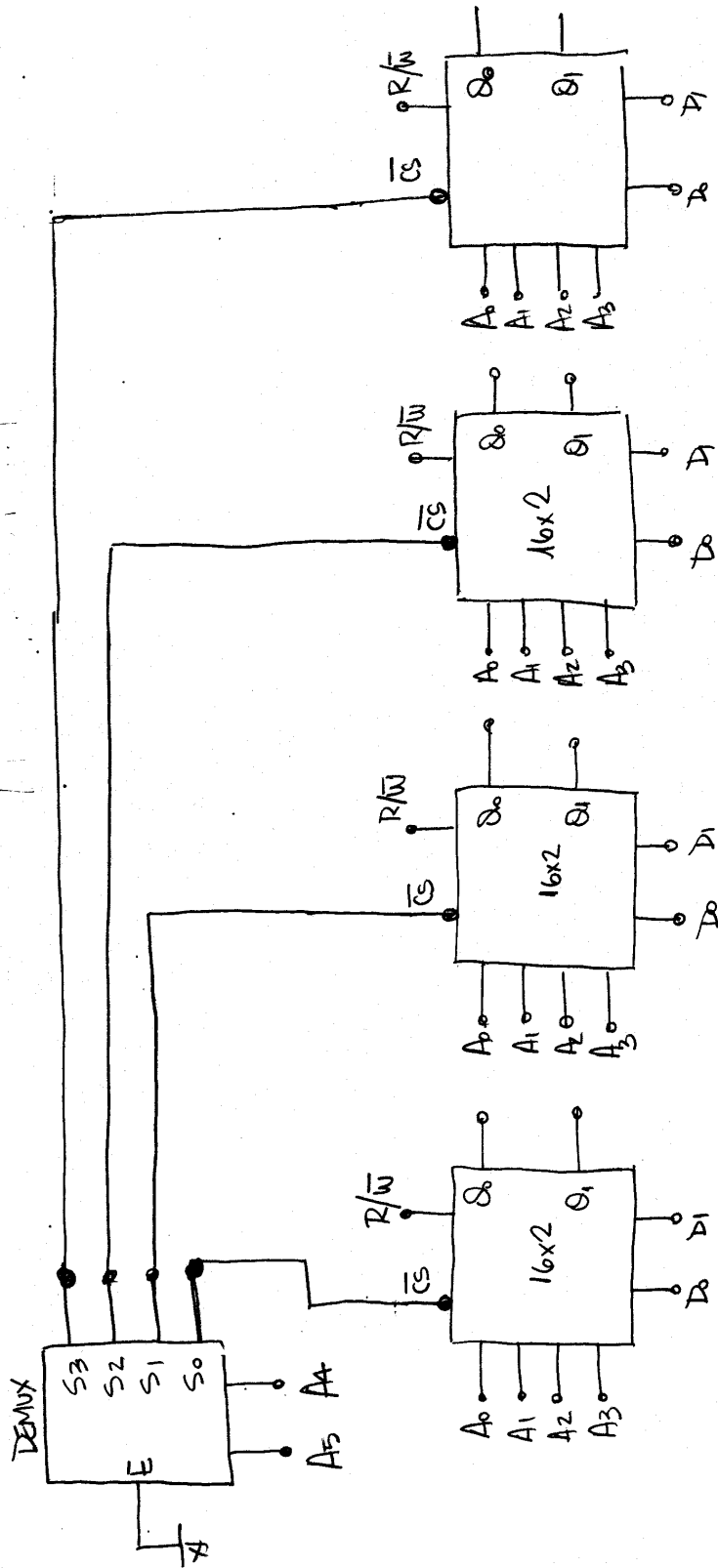


0/6

2ª Questão (2,0): Projete um circuito contador assíncrono, módulo 6, crescente, utilizando flip-flops tipo T e portas lógicas, se necessário.



3ª Questão (2,5): Dispondo-se de RAMs de (16x2), construir uma RAM de (64x2) para que se possa ler e gravar dados em qualquer endereço.

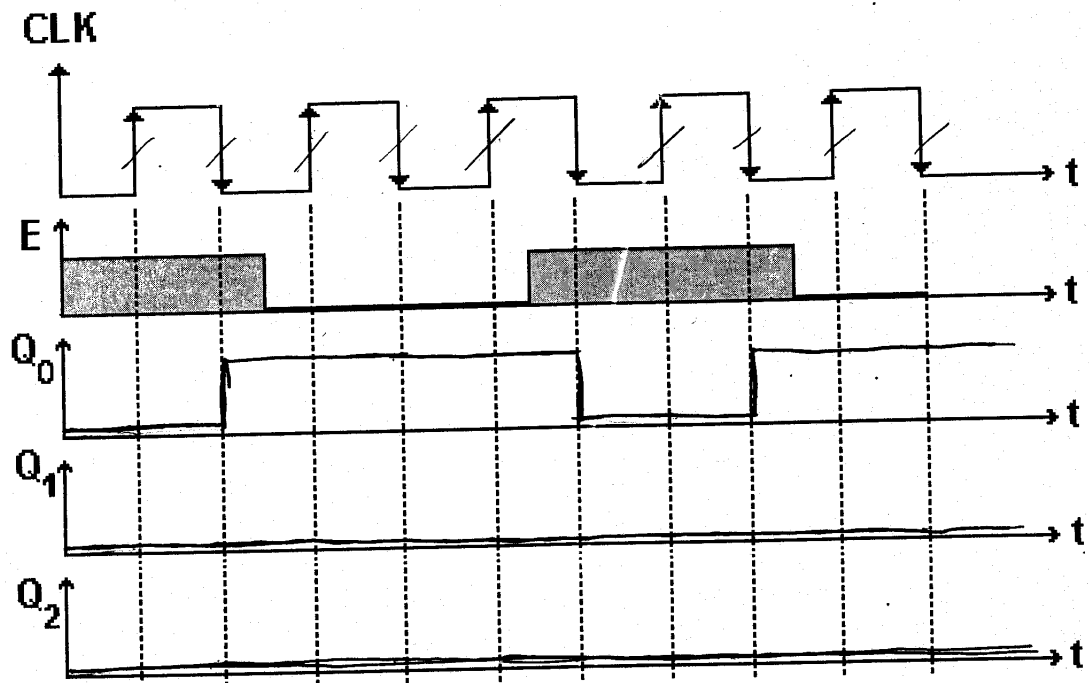
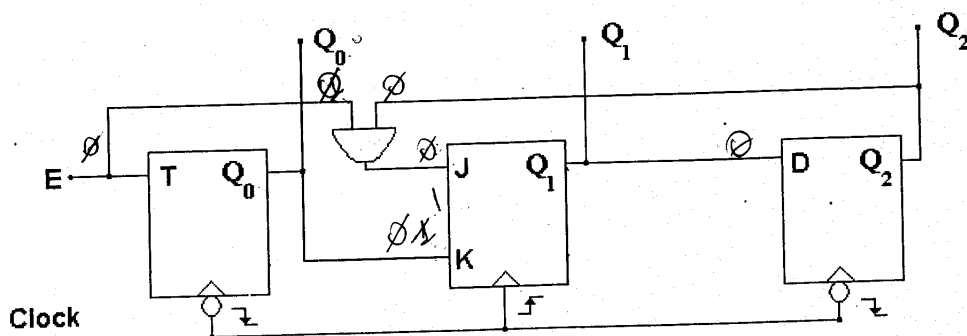


2.5

16×2

64×2

4ª Questão (2,5): Dado o circuito abaixo, desenhe as formas de onda nas saídas Q_0 , Q_1 e Q_2 considerando que, inicialmente, todas as saídas estejam em zero.



1 → 1,0

2 → 2,0

3 → 2,5