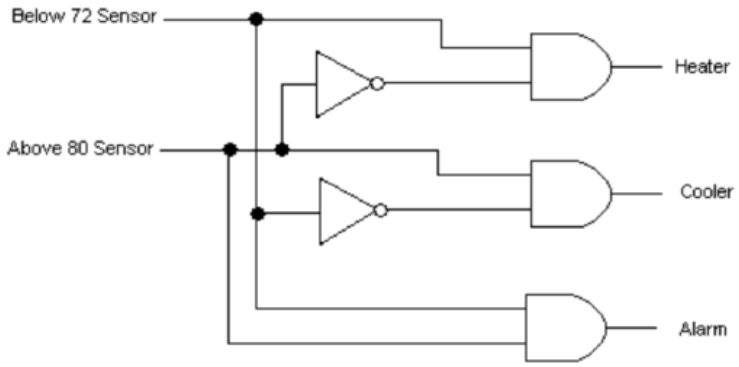
《SE-211 Digital Circuits and Logic Design》 期 末 试 题 答 案 (A)

1. (2 points for each; 20 points in total)
   (1)~(10)　D A D C D　　C D C B C

2. (10 points)　$OUT = \overline{A}\,\overline{X}P$

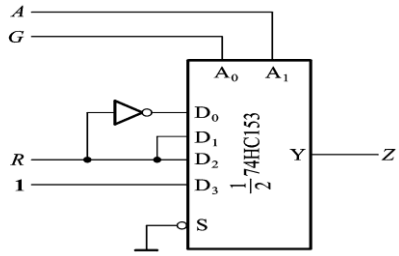
3. (10 points)



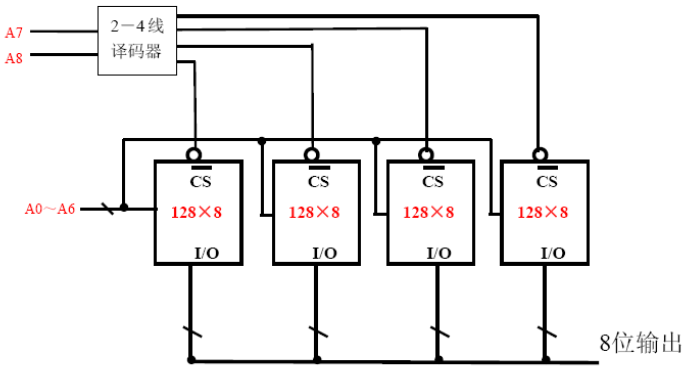
4. (12 points)

$$Y = \left(\overline{A_1}\,\overline{A_0}D_0 + \overline{A_1}A_0D_1 + A_1\overline{A_0}D_2 + A_1A_0D_3\right)\overline{S}$$

$$Z = \bar{R}\bar{A}\bar{G} + \bar{R}AG + R\bar{A}G + RA\bar{G} + RAG$$
$$= \bar{R}(\bar{A}\bar{G}) + R(\bar{A}G) + R(A\bar{G}) + 1\cdot(AG)$$



5. (10 points)



6. (18 points)

(1) Keypoints

$\overline{CLRN} = \overline{Q_D Q_C}$

$ENT = ENP = 1$

$\overline{LDN} = 1$

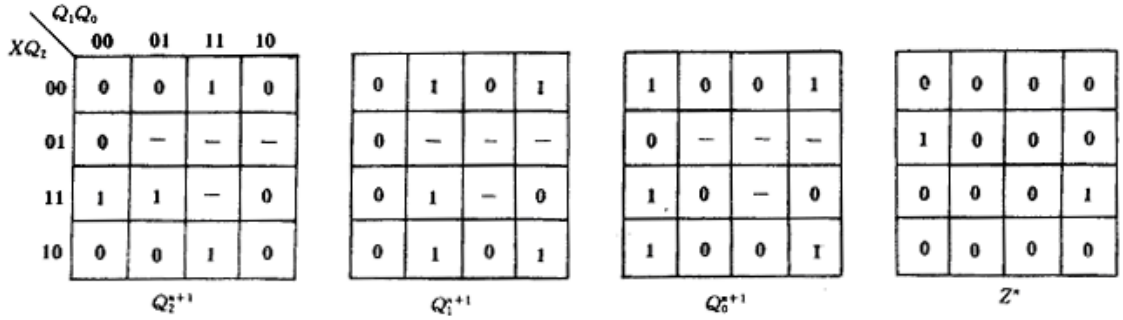
(2) Keypoints

$\overline{LDN} = \overline{Q_D \overline{Q_C} Q_B Q_A}$

$\overline{CLRN} = ENT = ENP = 1$

$A = B = C = D = 0$

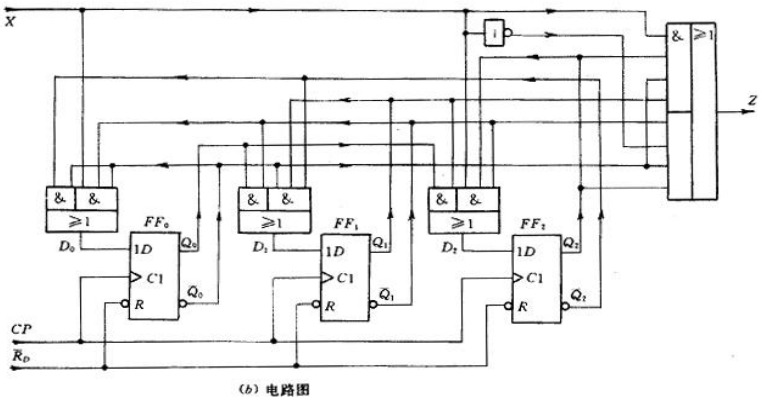
7. (20 points)



(a) 次态及输出卡诺图

$Q_2^{n+1} = D_2 = Q_1 Q_0 + X Q_2 \overline{Q_1}$ $\quad$ $Q_1^{n+1} = D_1 = \overline{Q_1} Q_0 + \overline{Q_2} Q_1 \overline{Q_0}$

$Q_0^{n+1} = D_0 = \overline{Q_2}\,\overline{Q_0} + X \overline{Q_1}\,\overline{Q_0}$ $\quad$ $Z = \overline{X} Q_2 \overline{Q_1}\,\overline{Q_0} + X Q_2 Q_1 \overline{Q_0}$



(b) 电路图