Answers To Review Exercise

1)

Good Video	Free Gift	Appear On TOTP	Have Hit Single
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	1

Probability of a hit single = **5/8 = 62.5%**

2)
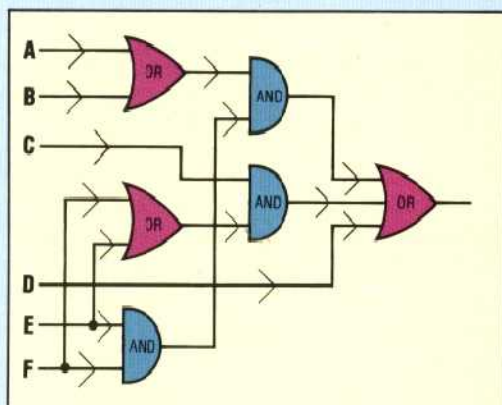
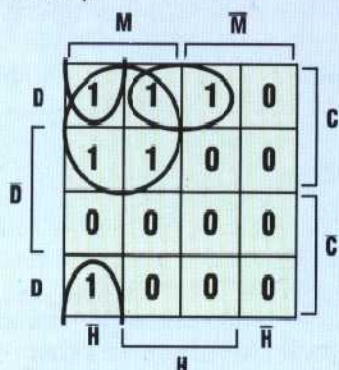**3 a)** To turn high resolution on:

POKE23148,PEEK(23148)OR48

b) To turn high resolution off:

POKE23148,PEEK(23148)AND207

4) The truth table is:

| Manager	Deputy	Chief Cashier	Hours 9–5	Unlock Door
0	0	0	0	0
0	0	0	1	0
0	0	1	0	0
0	0	1	1	0
0	1	0	0	0
0	1	0	1	0
0	1	1	0	0
0	1	1	1	1
1	0	0	0	0
1	0	0	1	0
1	0	1	0	1
1	0	1	1	1
1	1	0	0	1
1	1	0	1	1
1	1	1	0	1
1	1	1	1	1

From the k-map:

We obtain the expression: $U = M.C + M.D.\overline{H} + D.C.H$. It is easy to check if we are correct at this stage by converting this expression back into English. The expression says 'The door may be unlocked by:

i) the Manager and Cashier at any time
ii) the Manager and his Deputy out of hours
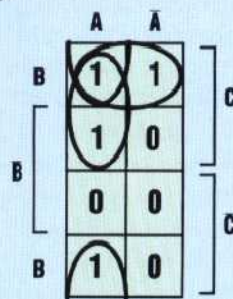**iii)** the Deputy and Cashier between the hours of 9am and 5pm

The corresponding circuit looks like this:
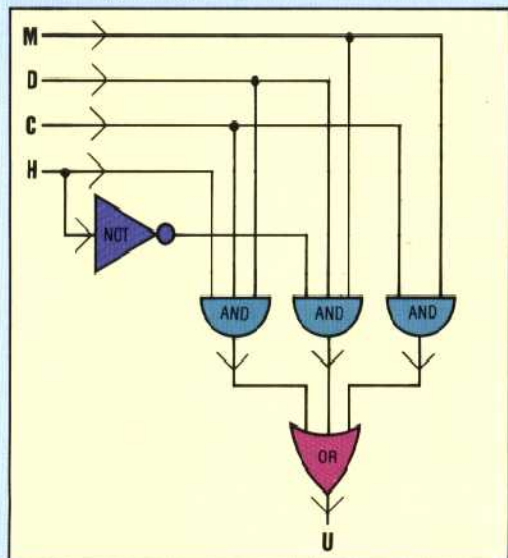
5) The truth table is:

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

From the k-map:

We get the expression: $S = A.B + A.C + B.C$.
The corresponding circuit is: