s3	s2	s1	s0
0	0	0	0
1	0	0	1

a. Truth table for PCWrite

s3	s2	s1	s0
1	0	0	0

b. Truth table for PCWriteCond

s3	s2	s1	s0
0	0	1	1
0	1	0	1

c. Truth table for IorD

s3	s2	s1	s0
0	0	0	0
0	0	1	1

d. Truth table for MemRead

s3	s2	s1	s0
0	1	0	1

e. Truth table for MemWrite

s3	s2	s1	s0
0	0	0	0

f. Truth table for IRWrite

s3	s2	s1	s0
0	1	0	0

g. Truth table for MemtoReg

s3	s2	s1	s0
1	0	0	1

h. Truth table for PCSource1

s3	s2	s1	s0
1	0	0	0

i. Truth table for PCSource0

s3	s2	s1	s0
0	1	1	0

j. Truth table for ALUOp1

s3	s2	s1	s0
1	0	0	0

k. Truth table for ALUOp0

s3	s2	s1	s0
0	0	0	1
0	0	1	0

l. Truth table for ALUSrcB1

s3	s2	s1	s0
0	0	0	0
0	0	0	1

m. Truth table for ALUSrcB0

s3	s2	s1	s0
0	0	1	0
0	1	1	0
1	0	0	0

n. Truth table for ALUSrcA

s3	s2	s1	s0
0	1	0	0
0	1	1	1

o. Truth table for RegWrite

s3	s2	s1	s0
0	1	1	1

p. Truth table for RegDst

FIGURE D.3.4 The truth tables are shown for the 16 datapath control signals that depend only on the current-state input bits, which are shown for each table. Each truth table row corresponds to 64 entries: one for each possible value of the six Op bits. Notice that some of the outputs are active under nearly the same circumstances. For example, in the case of PCWriteCond, PCSource0, and ALUOp0, these signals are active only in state 8 (see b, i, and k). Th ese three signals could be replaced by one signal. Th ere are otheropportunities for reducing the logic needed to implement the control function by taking advantage of further similarities in the truth tables.