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P1
Q1. (a)Xnor (b)Nor (c)Nand
Q2. f=1
Q3. f=0
Q4. (a)f=1 eq=$f = x1\&x2\hat{}x0$
(b). f=0 eq=$f = x0\&x3\hat{}x2\hat{}x1$
Q5.(a) f=1 estrutural=or g0(w0,x1,x0); and g1(w1,w0,x2);
(b) f=0 estrutural=nor g0(w0,x2,x3); nand g1(w1,w0,x1); xor g2(w2,w1,x0);
Q6.(a) f=1
(b) f=0
Q7.(a) f=1 estrutural=nor g0(w0,x3,x0); nor g1(w1,x2,x1); xor gf(f,w0,w1);
(b) f=1 estrutural=xnor g0(w0,x0,x1); nand g1(w1,x2,x3); nand gf(f,w0,w1);
Q8.(a) f=1
(b) f=1
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P2
Q1. (a)Xnor (b)Or (c)and
Q2. f=1
Q3. f=1
Q4. (a)f=1 eq=$f = x0|x2|x1$
(b). f=1 eq=$f = x3\hat{}x2\&x0\hat{}x1$
Q5.(a) f=0 estrutural=or g0(w0,x1,x0); xor g1(w1,w0,x2);
(b) f=1 estrutural=xnor g0(w0,x1,x2); xor g1(w1,w0,x0); xor g2(w2,w1,x3);
Q6.(a) f=1
(b) f=0
Q7.(a) f=1 estrutural=nand g0(w0,x0,x1); nor g1(w1,x2,x3); nand gf(f,w0,w1);
(b) f=1 estrutural=xor g0(w0,x2,x0); xor g1(w1,x1,x3); nand gf(f,w0,w1);
Q8.(a) f=0
(b) f=0
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P3
Q1. (a)and (b)Xor (c)Or
Q2. f=0
Q3. f=1
Q4. (a)f=1 eq=$f = x1\hat{}x2|x0$
(b). f=0 eq=$f = x0\&x3\hat{}x1\hat{}x2$
Q5.(a) f=1 estrutural=and g0(w0,x2,x1); nand g1(w1,w0,x0);
(b) f=0 estrutural=nand g0(w0,x1,x2); and g1(w1,w0,x3); or g2(w2,w1,x0);
Q6.(a) f=0
(b) f=1
Q7.(a) f=0 estrutural=xor g0(w0,x3,x1); nand g1(w1,x2,x0); xnor gf(f,w0,w1);
(b) f=1 estrutural=nor g0(w0,x0,x1); and g1(w1,x2,x3); nand gf(f,w0,w1);
Q8.(a) f=0
(b) f=0
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P4
Q1. (a)Or (b)Nand (c)Xor
Q2. f=1

Q3. f=0
Q4. (a)f=0 eq=$f = x0\hat{}x2\hat{}x1$
(b). f=0 eq=$f = x1\hat{}x3\&x0\&x2$
Q5.(a) f=0 estrutural=and g0(w0,x0,x2); xnor g1(w1,w0,x1);
(b) f=1 estrutural=or g0(w0,x3,x1); xor g1(w1,w0,x0); xor g2(w2,w1,x2);
Q6.(a) f=0
(b) f=0
Q7.(a) f=0 estrutural=or g0(w0,x1,x0); or g1(w1,x2,x3); nor gf(f,w0,w1);
(b) f=1 estrutural=xnor g0(w0,x2,x0); xnor g1(w1,x3,x1); xor gf(f,w0,w1);
Q8.(a) f=1
(b) f=0
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P5

Q1. (a)Xnor (b)Nand (c)Xor
Q2. f=0
Q3. f=0
Q4. (a)f=0 eq=$f = x2\&x0\&x1$
(b). f=1 eq=$f = x3\hat{}x2\hat{}x1|x0$
Q5.(a) f=1 estrutural=xor g0(w0,x2,x0); or g1(w1,w0,x1);
(b) f=1 estrutural=xor g0(w0,x2,x1); xor g1(w1,w0,x0); nand g2(w2,w1,x3);
Q6.(a) f=0
(b) f=1
Q7.(a) f=1 estrutural=xnor g0(w0,x0,x1); nand g1(w1,x3,x2); or gf(f,w0,w1);
(b) f=1 estrutural=xnor g0(w0,x1,x3); xnor g1(w1,x2,x0); nand gf(f,w0,w1);
Q8.(a) f=0
(b) f=1
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P6

Q1. (a)Nor (b)and (c)Or
Q2. f=0
Q3. f=0
Q4. (a)f=1 eq=$f = x0\hat{}x2|x1$
(b). f=1 eq=$f = x0|x2|x1|x3$
Q5.(a) f=1 estrutural=xor g0(w0,x1,x2); nor g1(w1,w0,x0);
(b) f=0 estrutural=nand g0(w0,x0,x1); and g1(w1,w0,x3); nor g2(w2,w1,x2);
Q6.(a) f=0
(b) f=1
Q7.(a) f=0 estrutural=xor g0(w0,x1,x3); and g1(w1,x0,x2); nor gf(f,w0,w1);
(b) f=1 estrutural=xor g0(w0,x3,x2); nand g1(w1,x1,x0); or gf(f,w0,w1);
Q8.(a) f=1
(b) f=1
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P7

Q1. (a)Xor (b)Nor (c)Xnor
Q2. f=1
Q3. f=1
Q4. (a)f=0 eq=$f = x2\&x0|x1$
(b). f=1 eq=$f = x3\hat{}x1|x0|x2$
Q5.(a) f=0 estrutural=nor g0(w0,x1,x0); or g1(w1,w0,x2);
(b) f=1 estrutural=xor g0(w0,x0,x2); nand g1(w1,w0,x1); xor g2(w2,w1,x3);

Q6.(a) f=1
(b) f=0
Q7.(a) f=0 estrutural=xnor g0(w0,x2,x1); nor g1(w1,x3,x0); nor gf(f,w0,w1);
(b) f=0 estrutural=nor g0(w0,x3,x0); and g1(w1,x1,x2); and gf(f,w0,w1);
Q8.(a) f=0
(b) f=1
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P8

Q1. (a)Nor (b)and (c)Xor
Q2. f=1
Q3. f=1
Q4. (a)f=1 eq=$f = x0|x1\hat{}x2$
(b). f=1 eq=$f = x1\hat{}x0|x2\hat{}x3$
Q5.(a) f=0 estrutural=nand g0(w0,x1,x0); xnor g1(w1,w0,x2);
(b) f=0 estrutural=xor g0(w0,x1,x0); xnor g1(w1,w0,x3); and g2(w2,w1,x2);
Q6.(a) f=0
(b) f=0
Q7.(a) f=0 estrutural=nor g0(w0,x1,x3); xnor g1(w1,x2,x0); xnor gf(f,w0,w1);
(b) f=0 estrutural=or g0(w0,x0,x1); or g1(w1,x2,x3); nor gf(f,w0,w1);
Q8.(a) f=0
(b) f=1
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P9

Q1. (a)Xnor (b)Xor (c)Nand
Q2. f=1
Q3. f=0
Q4. (a)f=1 eq=$f = x0|x1\&x2$
(b). f=0 eq=$f = x0\&x3|x1|x2$
Q5.(a) f=1 estrutural=xor g0(w0,x1,x2); nand g1(w1,w0,x0);
(b) f=1 estrutural=or g0(w0,x1,x3); and g1(w1,w0,x0); xnor g2(w2,w1,x2);
Q6.(a) f=0
(b) f=0
Q7.(a) f=1 estrutural=nor g0(w0,x2,x3); xor g1(w1,x1,x0); xor gf(f,w0,w1);
(b) f=0 estrutural=nor g0(w0,x1,x0); nor g1(w1,x2,x3); and gf(f,w0,w1);
Q8.(a) f=0
(b) f=0
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P10

Q1. (a)Nor (b)and (c)Xor
Q2. f=1
Q3. f=1
Q4. (a)f=1 eq=$f = x2|x0\hat{}x1$
(b). f=0 eq=$f = x1\&x3\&x2\&x0$
Q5.(a) f=1 estrutural=xnor g0(w0,x1,x0); or g1(w1,w0,x2);
(b) f=1 estrutural=nor g0(w0,x3,x0); nor g1(w1,w0,x1); nand g2(w2,w1,x2);
Q6.(a) f=0
(b) f=0
Q7.(a) f=1 estrutural=or g0(w0,x2,x0); nand g1(w1,x1,x3); xor gf(f,w0,w1);
(b) f=0 estrutural=xnor g0(w0,x2,x0); xor g1(w1,x1,x3); xnor gf(f,w0,w1);
Q8.(a) f=1

(b) f=0
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P11
Q1. (a)and (b)Xnor (c)Xor
Q2. f=1
Q3. f=0
Q4. (a)f=1 eq=$f = x1\hat{}x0\&x2$
(b). f=0 eq=$f = x2\&x1\&x0\&x3$
Q5.(a) f=0 estrutural=and g0(w0,x2,x0); nor g1(w1,w0,x1);
(b) f=0 estrutural=and g0(w0,x2,x1); xnor g1(w1,w0,x3); xnor g2(w2,w1,x0);
Q6.(a) f=0
(b) f=1
Q7.(a) f=1 estrutural=xor g0(w0,x1,x2); nand g1(w1,x0,x3); or gf(f,w0,w1);
(b) f=1 estrutural=nor g0(w0,x1,x3); nand g1(w1,x0,x2); nand gf(f,w0,w1);
Q8.(a) f=1
(b) f=0
-
-
P12
Q1. (a)and (b)Or (c)Nand
Q2. f=1
Q3. f=1
Q4. (a)f=0 eq=$f = x0\&x2\&x1$
(b). f=0 eq=$f = x0\hat{}x3\&x1\&x2$
Q5.(a) f=0 estrutural=nor g0(w0,x0,x1); and g1(w1,w0,x2);
(b) f=0 estrutural=or g0(w0,x2,x3); nand g1(w1,w0,x1); and g2(w2,w1,x0);
Q6.(a) f=1
(b) f=0
Q7.(a) f=1 estrutural=nor g0(w0,x1,x0); xnor g1(w1,x2,x3); nand gf(f,w0,w1);
(b) f=1 estrutural=xor g0(w0,x2,x0); nor g1(w1,x1,x3); xor gf(f,w0,w1);
Q8.(a) f=0
(b) f=1
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P13
Q1. (a)Xnor (b)Or (c)and
Q2. f=0
Q3. f=1
Q4. (a)f=1 eq=$f = x1\hat{}x0\hat{}x2$
(b). f=0 eq=$f = x1\&x3\hat{}x0|x2$
Q5.(a) f=1 estrutural=nor g0(w0,x1,x0); nor g1(w1,w0,x2);
(b) f=1 estrutural=nand g0(w0,x2,x1); and g1(w1,w0,x3); xnor g2(w2,w1,x0);
Q6.(a) f=0
(b) f=1
Q7.(a) f=0 estrutural=xor g0(w0,x2,x0); nor g1(w1,x3,x1); nor gf(f,w0,w1);
(b) f=0 estrutural=xnor g0(w0,x3,x0); or g1(w1,x1,x2); and gf(f,w0,w1);
Q8.(a) f=0
(b) f=1
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P14
Q1. (a)Nand (b)and (c)Nor

Q2. f=0
Q3. f=0
Q4. (a)f=1 eq=$f = x0\hat{}x1\&x2$
(b). f=1 eq=$f = x1\hat{}x3\&x2\&x0$
Q5.(a) f=0 estrutural=nand g0(w0,x2,x0); nor g1(w1,w0,x1);
(b) f=0 estrutural=or g0(w0,x0,x3); xnor g1(w1,w0,x2); xor g2(w2,w1,x1);
Q6.(a) f=0
(b) f=0
Q7.(a) f=1 estrutural=nor g0(w0,x3,x2); xnor g1(w1,x0,x1); nand gf(f,w0,w1);
(b) f=0 estrutural=xnor g0(w0,x0,x2); xnor g1(w1,x3,x1); nor gf(f,w0,w1);
Q8.(a) f=1
(b) f=1
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P15
Q1. (a)Nand (b)Xnor (c)Nor
Q2. f=1
Q3. f=1
Q4. (a)f=1 eq=$f = x0\hat{}x1\&x2$
(b). f=0 eq=$f = x2\hat{}x3\hat{}x0\&x1$
Q5.(a) f=0 estrutural=or g0(w0,x0,x1); nand g1(w1,w0,x2);
(b) f=1 estrutural=nand g0(w0,x3,x1); nand g1(w1,w0,x2); nand g2(w2,w1,x0);
Q6.(a) f=0
(b) f=0
Q7.(a) f=1 estrutural=and g0(w0,x2,x1); xnor g1(w1,x0,x3); xor gf(f,w0,w1);
(b) f=1 estrutural=nor g0(w0,x0,x1); xnor g1(w1,x3,x2); or gf(f,w0,w1);
Q8.(a) f=0
(b) f=1
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P16
Q1. (a)Xnor (b)Nand (c)Or
Q2. f=0
Q3. f=1
Q4. (a)f=0 eq=$f = x1|x2\&x0$
(b). f=1 eq=$f = x1\hat{}x3|x2|x0$
Q5.(a) f=0 estrutural=xnor g0(w0,x0,x1); xor g1(w1,w0,x2);
(b) f=0 estrutural=xor g0(w0,x1,x2); nand g1(w1,w0,x3); nor g2(w2,w1,x0);
Q6.(a) f=0
(b) f=1
Q7.(a) f=0 estrutural=xnor g0(w0,x0,x3); nand g1(w1,x1,x2); xor gf(f,w0,w1);
(b) f=0 estrutural=xor g0(w0,x3,x0); xnor g1(w1,x2,x1); xor gf(f,w0,w1);
Q8.(a) f=0
(b) f=0
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P17
Q1. (a)and (b)Xnor (c)Xor
Q2. f=1
Q3. f=1
Q4. (a)f=1 eq=$f = x0\hat{}x1|x2$
(b). f=1 eq=$f = x2|x1\hat{}x3|x0$
Q5.(a) f=1 estrutural=or g0(w0,x2,x0); xnor g1(w1,w0,x1);

(b) f=1 estrutural=nor g0(w0,x1,x2); nand g1(w1,w0,x0); nand g2(w2,w1,x3);
Q6.(a) f=1
(b) f=1
Q7.(a) f=0 estrutural=nand g0(w0,x3,x2); xnor g1(w1,x0,x1); or gf(f,w0,w1);
(b) f=0 estrutural=nand g0(w0,x3,x1); nand g1(w1,x2,x0); nor gf(f,w0,w1);
Q8.(a) f=1
(b) f=0
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P18

Q1. (a)and (b)Nand (c)Nor
Q2. f=0
Q3. f=0
Q4. (a)f=1 eq=$f = x0|x2|x1$
(b). f=1 eq=$f = x2|x1|x0|x3$
Q5.(a) f=1 estrutural=and g0(w0,x0,x2); or g1(w1,w0,x1);
(b) f=1 estrutural=nor g0(w0,x3,x2); nor g1(w1,w0,x1); xor g2(w2,w1,x0);
Q6.(a) f=1
(b) f=0
Q7.(a) f=0 estrutural=xor g0(w0,x0,x3); and g1(w1,x2,x1); xnor gf(f,w0,w1);
(b) f=0 estrutural=nand g0(w0,x1,x2); xor g1(w1,x0,x3); and gf(f,w0,w1);
Q8.(a) f=0
(b) f=0
-
-

P19

Q1. (a)Xnor (b)Nor (c)and
Q2. f=1
Q3. f=1
Q4. (a)f=0 eq=$f = x0\&x1|x2$
(b). f=1 eq=$f = x2|x1\hat{}x0\hat{}x3$
Q5.(a) f=0 estrutural=xor g0(w0,x2,x1); nor g1(w1,w0,x0);
(b) f=1 estrutural=and g0(w0,x0,x1); or g1(w1,w0,x2); nand g2(w2,w1,x3);
Q6.(a) f=1
(b) f=1
Q7.(a) f=0 estrutural=xor g0(w0,x3,x2); nand g1(w1,x1,x0); nor gf(f,w0,w1);
(b) f=0 estrutural=or g0(w0,x0,x1); and g1(w1,x2,x3); and gf(f,w0,w1);
Q8.(a) f=0
(b) f=1
-
-

P20

Q1. (a)Xnor (b)and (c)Or
Q2. f=0
Q3. f=0
Q4. (a)f=0 eq=$f = x0\&x2\&x1$
(b). f=1 eq=$f = x3\&x1\hat{}x0\&x2$
Q5.(a) f=0 estrutural=xor g0(w0,x2,x1); or g1(w1,w0,x0);
(b) f=0 estrutural=or g0(w0,x2,x1); xor g1(w1,w0,x3); and g2(w2,w1,x0);
Q6.(a) f=1
(b) f=1
Q7.(a) f=1 estrutural=nand g0(w0,x0,x2); xnor g1(w1,x1,x3); or gf(f,w0,w1);
(b) f=0 estrutural=xnor g0(w0,x2,x1); xor g1(w1,x0,x3); xor gf(f,w0,w1);

Q8.(a) f=0
(b) f=0
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P21
Q1. (a)Nor (b)Xor (c)Or
Q2. f=0
Q3. f=1
Q4. (a)f=1 eq=$f = x0\hat{}x2\&x1$
(b). f=1 eq=$f = x2\hat{}x0|x3\&x1$
Q5.(a) f=0 estrutural=and g0(w0,x0,x2); or g1(w1,w0,x1);
(b) f=1 estrutural=xor g0(w0,x2,x3); nand g1(w1,w0,x1); nand g2(w2,w1,x0);
Q6.(a) f=0
(b) f=1
Q7.(a) f=1 estrutural=xor g0(w0,x1,x2); nand g1(w1,x0,x3); or gf(f,w0,w1);
(b) f=1 estrutural=or g0(w0,x2,x3); nand g1(w1,x1,x0); xnor gf(f,w0,w1);
Q8.(a) f=0
(b) f=0
-
-
P22
Q1. (a)Nor (b)and (c)Xor
Q2. f=0
Q3. f=1
Q4. (a)f=0 eq=$f = x0|x1\hat{}x2$
(b). f=1 eq=$f = x1|x2\hat{}x0\&x3$
Q5.(a) f=1 estrutural=nor g0(w0,x2,x0); or g1(w1,w0,x1);
(b) f=1 estrutural=nor g0(w0,x1,x2); xnor g1(w1,w0,x3); nand g2(w2,w1,x0);
Q6.(a) f=1
(b) f=1
Q7.(a) f=0 estrutural=or g0(w0,x3,x1); nor g1(w1,x0,x2); nor gf(f,w0,w1);
(b) f=1 estrutural=xor g0(w0,x3,x2); nand g1(w1,x0,x1); xnor gf(f,w0,w1);
Q8.(a) f=1
(b) f=1
-
-
P23
Q1. (a)and (b)Nor (c)Or
Q2. f=0
Q3. f=0
Q4. (a)f=0 eq=$f = x2|x1\hat{}x0$
(b). f=0 eq=$f = x3\hat{}x1\hat{}x2\&x0$
Q5.(a) f=0 estrutural=nand g0(w0,x2,x0); nor g1(w1,w0,x1);
(b) f=0 estrutural=nor g0(w0,x1,x0); xnor g1(w1,w0,x3); nor g2(w2,w1,x2);
Q6.(a) f=0
(b) f=1
Q7.(a) f=1 estrutural=nor g0(w0,x1,x2); xor g1(w1,x3,x0); xor gf(f,w0,w1);
(b) f=1 estrutural=nand g0(w0,x0,x3); xor g1(w1,x1,x2); xnor gf(f,w0,w1);
Q8.(a) f=1
(b) f=1
-
-
P24

Q1. (a)Xor (b)and (c)Xnor
Q2. f=0
Q3. f=0
Q4. (a)f=1 eq=$f = x1|x0|x2$
(b). f=0 eq=$f = x3\&x1|x2\hat{}x0$
Q5.(a) f=1 estrutural=nor g0(w0,x1,x2); or g1(w1,w0,x0);
(b) f=1 estrutural=xor g0(w0,x1,x0); xor g1(w1,w0,x3); or g2(w2,w1,x2);
Q6.(a) f=1
(b) f=1
Q7.(a) f=1 estrutural=or g0(w0,x1,x2); nor g1(w1,x0,x3); nand gf(f,w0,w1);
(b) f=1 estrutural=nand g0(w0,x0,x1); and g1(w1,x3,x2); nand gf(f,w0,w1);
Q8.(a) f=1
(b) f=1
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-

P25
Q1. (a)Nand (b)Xnor (c)Xor
Q2. f=0
Q3. f=1
Q4. (a)f=0 eq=$f = x0\hat{}x1\&x2$
(b). f=0 eq=$f = x3\hat{}x2\hat{}x1\hat{}x0$
Q5.(a) f=1 estrutural=or g0(w0,x1,x2); or g1(w1,w0,x0);
(b) f=0 estrutural=and g0(w0,x2,x1); nor g1(w1,w0,x3); and g2(w2,w1,x0);
Q6.(a) f=1
(b) f=1
Q7.(a) f=0 estrutural=and g0(w0,x2,x0); nand g1(w1,x1,x3); xnor gf(f,w0,w1);
(b) f=0 estrutural=and g0(w0,x2,x3); nor g1(w1,x0,x1); xor gf(f,w0,w1);
Q8.(a) f=0
(b) f=1
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P26
Q1. (a)Or (b)Xnor (c)Nor
Q2. f=1
Q3. f=0
Q4. (a)f=0 eq=$f = x1\&x0\&x2$
(b). f=1 eq=$f = x0\&x1\&x3|x2$
Q5.(a) f=0 estrutural=or g0(w0,x1,x2); nand g1(w1,w0,x0);
(b) f=1 estrutural=xnor g0(w0,x0,x2); nand g1(w1,w0,x3); or g2(w2,w1,x1);
Q6.(a) f=0
(b) f=0
Q7.(a) f=1 estrutural=or g0(w0,x1,x3); xnor g1(w1,x0,x2); xnor gf(f,w0,w1);
(b) f=0 estrutural=nor g0(w0,x1,x2); xnor g1(w1,x0,x3); xnor gf(f,w0,w1);
Q8.(a) f=1
(b) f=0
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P27
Q1. (a)and (b)Nor (c)Or
Q2. f=1
Q3. f=0
Q4. (a)f=1 eq=$f = x1|x0|x2$
(b). f=1 eq=$f = x3\hat{}x0\hat{}x1\hat{}x2$

Q5.(a) f=1 estrutural=nor g0(w0,x2,x0); nand g1(w1,w0,x1);
(b) f=1 estrutural=xor g0(w0,x2,x0); xor g1(w1,w0,x1); or g2(w2,w1,x3);
Q6.(a) f=0
(b) f=0
Q7.(a) f=0 estrutural=xnor g0(w0,x3,x0); and g1(w1,x2,x1); xnor gf(f,w0,w1);
(b) f=0 estrutural=nor g0(w0,x2,x3); or g1(w1,x0,x1); and gf(f,w0,w1);
Q8.(a) f=0
(b) f=0
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P28

Q1. (a)Nand (b)Nor (c)and
Q2. f=1
Q3. f=0
Q4. (a)f=1 eq=$f = x1|x0\hat{}x2$
(b). f=0 eq=$f = x0\&x1\hat{}x3\&x2$
Q5.(a) f=1 estrutural=xor g0(w0,x0,x1); xor g1(w1,w0,x2);
(b) f=1 estrutural=nor g0(w0,x3,x0); and g1(w1,w0,x1); nor g2(w2,w1,x2);
Q6.(a) f=0
(b) f=1
Q7.(a) f=0 estrutural=xnor g0(w0,x3,x2); nor g1(w1,x1,x0); and gf(f,w0,w1);
(b) f=0 estrutural=xor g0(w0,x3,x2); xnor g1(w1,x0,x1); nor gf(f,w0,w1);
Q8.(a) f=1
(b) f=1
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-

P29

Q1. (a)Nor (b)Nand (c)and
Q2. f=0
Q3. f=1
Q4. (a)f=0 eq=$f = x2\&x0\hat{}x1$
(b). f=1 eq=$f = x0\hat{}x3\&x1\&x2$
Q5.(a) f=0 estrutural=and g0(w0,x2,x0); and g1(w1,w0,x1);
(b) f=0 estrutural=xor g0(w0,x1,x0); or g1(w1,w0,x3); and g2(w2,w1,x2);
Q6.(a) f=0
(b) f=1
Q7.(a) f=0 estrutural=nor g0(w0,x1,x3); nor g1(w1,x0,x2); or gf(f,w0,w1);
(b) f=0 estrutural=xor g0(w0,x0,x3); xor g1(w1,x2,x1); nor gf(f,w0,w1);
Q8.(a) f=1
(b) f=0
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P30

Q1. (a)Xnor (b)Nor (c)Xor
Q2. f=0
Q3. f=0
Q4. (a)f=1 eq=$f = x2|x0|x1$
(b). f=0 eq=$f = x0\hat{}x1\hat{}x2\hat{}x3$
Q5.(a) f=1 estrutural=or g0(w0,x1,x0); nor g1(w1,w0,x2);
(b) f=1 estrutural=and g0(w0,x0,x2); and g1(w1,w0,x1); xor g2(w2,w1,x3);
Q6.(a) f=1
(b) f=1
Q7.(a) f=0 estrutural=or g0(w0,x2,x3); xnor g1(w1,x1,x0); nand gf(f,w0,w1);

(b) f=1 estrutural=xor g0(w0,x0,x2); or g1(w1,x1,x3); xor gf(f,w0,w1);
Q8.(a) f=1
(b) f=0
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P31

Q1. (a)and (b)Nor (c)Nand
Q2. f=0
Q3. f=1
Q4. (a)f=0 eq=$f = x2|x1\&x0$
(b). f=1 eq=$f = x3|x1\&x0|x2$
Q5.(a) f=1 estrutural=nor g0(w0,x0,x1); or g1(w1,w0,x2);
(b) f=0 estrutural=xnor g0(w0,x0,x2); or g1(w1,w0,x1); and g2(w2,w1,x3);
Q6.(a) f=1
(b) f=0
Q7.(a) f=1 estrutural=nor g0(w0,x2,x3); nand g1(w1,x0,x1); nand gf(f,w0,w1);
(b) f=1 estrutural=and g0(w0,x1,x2); and g1(w1,x0,x3); xnor gf(f,w0,w1);
Q8.(a) f=1
(b) f=0
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P32

Q1. (a)Xnor (b)and (c)Or
Q2. f=0
Q3. f=1
Q4. (a)f=0 eq=$f = x1\&x0|x2$
(b). f=1 eq=$f = x0\hat{}x1\hat{}x3|x2$
Q5.(a) f=1 estrutural=or g0(w0,x0,x2); xor g1(w1,w0,x1);
(b) f=0 estrutural=xor g0(w0,x2,x1); xnor g1(w1,w0,x0); and g2(w2,w1,x3);
Q6.(a) f=1
(b) f=0
Q7.(a) f=1 estrutural=and g0(w0,x1,x0); or g1(w1,x3,x2); xor gf(f,w0,w1);
(b) f=1 estrutural=or g0(w0,x1,x2); nand g1(w1,x3,x0); xor gf(f,w0,w1);
Q8.(a) f=0
(b) f=1
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P33

Q1. (a)Xor (b)Nor (c)Nand
Q2. f=0
Q3. f=1
Q4. (a)f=0 eq=$f = x0\hat{}x2\&x1$
(b). f=1 eq=$f = x3\hat{}x0\hat{}x2|x1$
Q5.(a) f=0 estrutural=xor g0(w0,x0,x1); nor g1(w1,w0,x2);
(b) f=1 estrutural=xnor g0(w0,x0,x2); or g1(w1,w0,x3); or g2(w2,w1,x1);
Q6.(a) f=1
(b) f=1
Q7.(a) f=0 estrutural=and g0(w0,x0,x2); xor g1(w1,x1,x3); xor gf(f,w0,w1);
(b) f=1 estrutural=and g0(w0,x3,x0); nand g1(w1,x1,x2); or gf(f,w0,w1);
Q8.(a) f=1
(b) f=0
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P34
Q1. (a)Or (b)Xnor (c)and
Q2. f=1
Q3. f=1
Q4. (a)f=0 eq=$f = x2\hat{}x0\hat{}x1$
(b). f=0 eq=$f = x0|x3\&x2\&x1$
Q5.(a) f=0 estrutural=xnor g0(w0,x2,x1); and g1(w1,w0,x0);
(b) f=1 estrutural=nand g0(w0,x3,x2); and g1(w1,w0,x0); nand g2(w2,w1,x1);
Q6.(a) f=1
(b) f=1
Q7.(a) f=0 estrutural=or g0(w0,x1,x0); and g1(w1,x2,x3); or gf(f,w0,w1);
(b) f=1 estrutural=xor g0(w0,x3,x0); and g1(w1,x2,x1); nand gf(f,w0,w1);
Q8.(a) f=0
(b) f=1
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P35
Q1. (a)Or (b)Xor (c)Nor
Q2. f=1
Q3. f=0
Q4. (a)f=0 eq=$f = x1\hat{}x0\&x2$
(b). f=1 eq=$f = x2\hat{}x0\hat{}x1\&x3$
Q5.(a) f=0 estrutural=and g0(w0,x0,x1); and g1(w1,w0,x2);
(b) f=1 estrutural=or g0(w0,x1,x0); nand g1(w1,w0,x2); or g2(w2,w1,x3);
Q6.(a) f=0
(b) f=0
Q7.(a) f=1 estrutural=nand g0(w0,x0,x2); xor g1(w1,x3,x1); xor gf(f,w0,w1);
(b) f=1 estrutural=nor g0(w0,x3,x1); xnor g1(w1,x0,x2); nor gf(f,w0,w1);
Q8.(a) f=1
(b) f=1
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-
P36
Q1. (a)Nand (b)Nor (c)Xor
Q2. f=1
Q3. f=1
Q4. (a)f=1 eq=$f = x0|x1\&x2$
(b). f=1 eq=$f = x1|x3\hat{}x2\&x0$
Q5.(a) f=0 estrutural=nand g0(w0,x2,x1); nand g1(w1,w0,x0);
(b) f=0 estrutural=nand g0(w0,x0,x2); or g1(w1,w0,x3); nor g2(w2,w1,x1);
Q6.(a) f=1
(b) f=0
Q7.(a) f=1 estrutural=and g0(w0,x3,x0); xor g1(w1,x2,x1); nand gf(f,w0,w1);
(b) f=0 estrutural=xor g0(w0,x0,x2); nand g1(w1,x3,x1); xor gf(f,w0,w1);
Q8.(a) f=1
(b) f=0
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P37
Q1. (a)Xor (b)Xnor (c)Or
Q2. f=0
Q3. f=1
Q4. (a)f=0 eq=$f = x0\&x1\&x2$

(b). f=0 eq=$f = x0\&x3\&x2\&x1$
Q5.(a) f=1 estrutural=nor g0(w0,x2,x1); or g1(w1,w0,x0);
(b) f=0 estrutural=and g0(w0,x1,x2); nor g1(w1,w0,x0); and g2(w2,w1,x3);
Q6.(a) f=1
(b) f=0
Q7.(a) f=1 estrutural=and g0(w0,x2,x1); xnor g1(w1,x3,x0); nand gf(f,w0,w1);
(b) f=0 estrutural=nor g0(w0,x3,x0); xor g1(w1,x2,x1); or gf(f,w0,w1);
Q8.(a) f=0
(b) f=1
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P38

Q1. (a)Nor (b)Nand (c)Xor
Q2. f=0
Q3. f=1
Q4. (a)f=0 eq=$f = x1\&x0\&x2$
(b). f=1 eq=$f = x1\&x3|x0\hat{}x2$
Q5.(a) f=0 estrutural=nand g0(w0,x1,x2); xnor g1(w1,w0,x0);
(b) f=1 estrutural=and g0(w0,x2,x0); nand g1(w1,w0,x1); or g2(w2,w1,x3);
Q6.(a) f=0
(b) f=1
Q7.(a) f=0 estrutural=or g0(w0,x0,x2); xor g1(w1,x3,x1); or gf(f,w0,w1);
(b) f=1 estrutural=nor g0(w0,x2,x3); and g1(w1,x1,x0); nor gf(f,w0,w1);
Q8.(a) f=1
(b) f=1
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P39

Q1. (a)and (b)Xor (c)Nor
Q2. f=0
Q3. f=0
Q4. (a)f=0 eq=$f = x2\hat{}x0\hat{}x1$
(b). f=0 eq=$f = x3\hat{}x0\&x2\hat{}x1$
Q5.(a) f=1 estrutural=nor g0(w0,x2,x1); nand g1(w1,w0,x0);
(b) f=0 estrutural=xor g0(w0,x2,x3); and g1(w1,w0,x1); xnor g2(w2,w1,x0);
Q6.(a) f=0
(b) f=1
Q7.(a) f=1 estrutural=nand g0(w0,x0,x1); xor g1(w1,x2,x3); nand gf(f,w0,w1);
(b) f=0 estrutural=and g0(w0,x2,x1); nand g1(w1,x3,x0); nor gf(f,w0,w1);
Q8.(a) f=0
(b) f=0
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P40

Q1. (a)Or (b)Xnor (c)Nand
Q2. f=1
Q3. f=1
Q4. (a)f=1 eq=$f = x1\hat{}x0\hat{}x2$
(b). f=0 eq=$f = x1|x0\hat{}x3\&x2$
Q5.(a) f=0 estrutural=xnor g0(w0,x0,x1); nor g1(w1,w0,x2);
(b) f=1 estrutural=or g0(w0,x1,x3); or g1(w1,w0,x0); and g2(w2,w1,x2);
Q6.(a) f=1
(b) f=0

Q7.(a) f=1 estrutural=xnor g0(w0,x0,x1); or g1(w1,x3,x2); nand gf(f,w0,w1);
(b) f=1 estrutural=xor g0(w0,x0,x3); xor g1(w1,x1,x2); or gf(f,w0,w1);
Q8.(a) f=0
(b) f=0
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P41

Q1. (a)and (b)Nor (c)Nand
Q2. f=1
Q3. f=1
Q4. (a)f=1 eq=$f = x0\&x2|x1$
(b). f=0 eq=$f = x0\&x3\&x1|x2$
Q5.(a) f=0 estrutural=xor g0(w0,x1,x0); and g1(w1,w0,x2);
(b) f=1 estrutural=xor g0(w0,x0,x1); nand g1(w1,w0,x2); xnor g2(w2,w1,x3);
Q6.(a) f=0
(b) f=1
Q7.(a) f=1 estrutural=nor g0(w0,x0,x2); nor g1(w1,x1,x3); nand gf(f,w0,w1);
(b) f=0 estrutural=or g0(w0,x1,x2); and g1(w1,x3,x0); xor gf(f,w0,w1);
Q8.(a) f=0
(b) f=1
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P42

Q1. (a)and (b)Or (c)Xnor
Q2. f=1
Q3. f=1
Q4. (a)f=0 eq=$f = x2\&x1\&x0$
(b). f=1 eq=$f = x3\hat{}x2\&x1\hat{}x0$
Q5.(a) f=0 estrutural=xnor g0(w0,x2,x0); xnor g1(w1,w0,x1);
(b) f=0 estrutural=xor g0(w0,x3,x1); nor g1(w1,w0,x0); nor g2(w2,w1,x2);
Q6.(a) f=0
(b) f=0
Q7.(a) f=1 estrutural=xor g0(w0,x3,x0); and g1(w1,x2,x1); nand gf(f,w0,w1);
(b) f=0 estrutural=xnor g0(w0,x2,x1); or g1(w1,x3,x0); nor gf(f,w0,w1);
Q8.(a) f=1
(b) f=1
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P43

Q1. (a)Nand (b)Xor (c)Or
Q2. f=0
Q3. f=1
Q4. (a)f=1 eq=$f = x1\hat{}x0\hat{}x2$
(b). f=1 eq=$f = x3\hat{}x0\&x2|x1$
Q5.(a) f=0 estrutural=nand g0(w0,x2,x1); xnor g1(w1,w0,x0);
(b) f=0 estrutural=nand g0(w0,x2,x3); and g1(w1,w0,x1); nor g2(w2,w1,x0);
Q6.(a) f=0
(b) f=0
Q7.(a) f=1 estrutural=or g0(w0,x2,x3); or g1(w1,x0,x1); and gf(f,w0,w1);
(b) f=1 estrutural=xor g0(w0,x3,x2); or g1(w1,x0,x1); xnor gf(f,w0,w1);
Q8.(a) f=1
(b) f=1
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P44

Q1. (a)Xor (b)Nand (c)Nor
Q2. f=1
Q3. f=0
Q4. (a)f=0 eq=$f = x2|x1\hat{}x0$
(b). f=1 eq=$f = x3|x2\hat{}x1|x0$
Q5.(a) f=1 estrutural=or g0(w0,x0,x2); xor g1(w1,w0,x1);
(b) f=0 estrutural=and g0(w0,x3,x0); or g1(w1,w0,x2); and g2(w2,w1,x1);
Q6.(a) f=0
(b) f=0
Q7.(a) f=0 estrutural=xnor g0(w0,x0,x2); or g1(w1,x1,x3); xor gf(f,w0,w1);
(b) f=0 estrutural=or g0(w0,x0,x2); or g1(w1,x1,x3); nor gf(f,w0,w1);
Q8.(a) f=1
(b) f=1

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P45

Q1. (a)Nand (b)Or (c)Nor
Q2. f=1
Q3. f=0
Q4. (a)f=1 eq=$f = x0\hat{}x1\hat{}x2$
(b). f=1 eq=$f = x2\hat{}x0\hat{}x3|x1$
Q5.(a) f=1 estrutural=nor g0(w0,x0,x2); nand g1(w1,w0,x1);
(b) f=0 estrutural=xnor g0(w0,x3,x0); xnor g1(w1,w0,x1); and g2(w2,w1,x2);
Q6.(a) f=1
(b) f=1
Q7.(a) f=1 estrutural=or g0(w0,x3,x2); or g1(w1,x1,x0); xor gf(f,w0,w1);
(b) f=0 estrutural=or g0(w0,x0,x2); xnor g1(w1,x3,x1); and gf(f,w0,w1);
Q8.(a) f=1
(b) f=0

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P46

Q1. (a)Xor (b)Or (c)Nor
Q2. f=0
Q3. f=0
Q4. (a)f=0 eq=$f = x0\hat{}x1\&x2$
(b). f=1 eq=$f = x2\hat{}x1|x3\&x0$
Q5.(a) f=0 estrutural=nor g0(w0,x2,x0); xor g1(w1,w0,x1);
(b) f=1 estrutural=xnor g0(w0,x2,x1); xor g1(w1,w0,x0); nand g2(w2,w1,x3);
Q6.(a) f=0
(b) f=0
Q7.(a) f=1 estrutural=or g0(w0,x2,x0); xor g1(w1,x3,x1); or gf(f,w0,w1);
(b) f=0 estrutural=nand g0(w0,x1,x0); xnor g1(w1,x2,x3); nor gf(f,w0,w1);
Q8.(a) f=1
(b) f=1

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P47

Q1. (a)Nor (b)Or (c)Xnor
Q2. f=1
Q3. f=1

Q4. (a)f=0 eq=$f = x2|x1\hat{}x0$
(b). f=0 eq=$f = x2\&x3\hat{}x0\&x1$
Q5.(a) f=0 estrutural=xnor g0(w0,x0,x2); and g1(w1,w0,x1);
(b) f=0 estrutural=xnor g0(w0,x0,x3); xor g1(w1,w0,x1); or g2(w2,w1,x2);
Q6.(a) f=1
(b) f=1
Q7.(a) f=0 estrutural=xor g0(w0,x2,x0); and g1(w1,x1,x3); and gf(f,w0,w1);
(b) f=0 estrutural=nor g0(w0,x0,x3); and g1(w1,x1,x2); and gf(f,w0,w1);
Q8.(a) f=1
(b) f=0
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P48

Q1. (a)Or (b)Nand (c)and
Q2. f=0
Q3. f=1
Q4. (a)f=1 eq=$f = x2\&x1\hat{}x0$
(b). f=0 eq=$f = x0|x3|x2\&x1$
Q5.(a) f=0 estrutural=nand g0(w0,x2,x0); nand g1(w1,w0,x1);
(b) f=1 estrutural=nor g0(w0,x0,x3); xor g1(w1,w0,x2); xor g2(w2,w1,x1);
Q6.(a) f=0
(b) f=1
Q7.(a) f=0 estrutural=nor g0(w0,x2,x1); nor g1(w1,x3,x0); and gf(f,w0,w1);
(b) f=0 estrutural=or g0(w0,x1,x0); nand g1(w1,x2,x3); nand gf(f,w0,w1);
Q8.(a) f=0
(b) f=0
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P49

Q1. (a)Xnor (b)Xor (c)Or
Q2. f=1
Q3. f=1
Q4. (a)f=1 eq=$f = x0\hat{}x2|x1$
(b). f=0 eq=$f = x1\&x0|x2\hat{}x3$
Q5.(a) f=0 estrutural=and g0(w0,x1,x2); nor g1(w1,w0,x0);
(b) f=1 estrutural=nand g0(w0,x1,x0); or g1(w1,w0,x2); or g2(w2,w1,x3);
Q6.(a) f=1
(b) f=1
Q7.(a) f=1 estrutural=and g0(w0,x2,x3); nor g1(w1,x1,x0); nand gf(f,w0,w1);
(b) f=0 estrutural=xor g0(w0,x2,x1); xor g1(w1,x3,x0); xor gf(f,w0,w1);
Q8.(a) f=0
(b) f=1
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P50

Q1. (a)Or (b)Nand (c)and
Q2. f=1
Q3. f=0
Q4. (a)f=1 eq=$f = x0\hat{}x1|x2$
(b). f=0 eq=$f = x1\hat{}x2\hat{}x0\&x3$
Q5.(a) f=1 estrutural=or g0(w0,x1,x2); nand g1(w1,w0,x0);
(b) f=1 estrutural=and g0(w0,x2,x1); xnor g1(w1,w0,x3); nand g2(w2,w1,x0);
Q6.(a) f=0

(b) f=0
Q7.(a) f=0 estrutural=xnor g0(w0,x2,x3); and g1(w1,x0,x1); xor gf(f,w0,w1);
(b) f=0 estrutural=nand g0(w0,x2,x1); and g1(w1,x3,x0); nand gf(f,w0,w1);
Q8.(a) f=1
(b) f=0
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P51

Q1. (a)Or (b)and (c)Xnor
Q2. f=1
Q3. f=1
Q4. (a)f=1 eq=$f = x2\&x0|x1$
(b). f=1 eq=$f = x3|x0\&x1\&x2$
Q5.(a) f=1 estrutural=or g0(w0,x0,x2); xor g1(w1,w0,x1);
(b) f=1 estrutural=nor g0(w0,x3,x1); xnor g1(w1,w0,x2); nand g2(w2,w1,x0);
Q6.(a) f=0
(b) f=1
Q7.(a) f=0 estrutural=or g0(w0,x3,x2); nand g1(w1,x1,x0); nor gf(f,w0,w1);
(b) f=0 estrutural=and g0(w0,x3,x0); nand g1(w1,x2,x1); nor gf(f,w0,w1);
Q8.(a) f=0
(b) f=0
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P52

Q1. (a)Or (b)Xnor (c)Nand
Q2. f=1
Q3. f=1
Q4. (a)f=1 eq=$f = x0|x1\&x2$
(b). f=1 eq=$f = x0\hat{}x1|x2\&x3$
Q5.(a) f=0 estrutural=or g0(w0,x1,x0); and g1(w1,w0,x2);
(b) f=0 estrutural=xor g0(w0,x2,x0); xnor g1(w1,w0,x3); and g2(w2,w1,x1);
Q6.(a) f=0
(b) f=0
Q7.(a) f=1 estrutural=xnor g0(w0,x1,x2); xor g1(w1,x0,x3); and gf(f,w0,w1);
(b) f=1 estrutural=xnor g0(w0,x3,x0); or g1(w1,x1,x2); or gf(f,w0,w1);
Q8.(a) f=0
(b) f=1
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P53

Q1. (a)Nor (b)Xor (c)Xnor
Q2. f=1
Q3. f=1
Q4. (a)f=0 eq=$f = x2\&x0\&x1$
(b). f=0 eq=$f = x3\hat{}x1\&x0\hat{}x2$
Q5.(a) f=0 estrutural=nor g0(w0,x0,x1); xnor g1(w1,w0,x2);
(b) f=0 estrutural=xor g0(w0,x1,x2); xnor g1(w1,w0,x3); nor g2(w2,w1,x0);
Q6.(a) f=0
(b) f=0
Q7.(a) f=0 estrutural=nor g0(w0,x3,x0); nand g1(w1,x2,x1); and gf(f,w0,w1);
(b) f=0 estrutural=or g0(w0,x0,x3); nand g1(w1,x1,x2); nor gf(f,w0,w1);
Q8.(a) f=0
(b) f=1

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P54
Q1. (a)Or (b)and (c)Xor
Q2. f=1
Q3. f=1
Q4. (a)f=1 eq=$f = x0\&x2\&x1$
(b). f=0 eq=$f = x0|x3\&x2\hat{}x1$
Q5.(a) f=1 estrutural=xnor g0(w0,x0,x2); nor g1(w1,w0,x1);
(b) f=1 estrutural=and g0(w0,x2,x3); nor g1(w1,w0,x0); or g2(w2,w1,x1);
Q6.(a) f=0
(b) f=0
Q7.(a) f=0 estrutural=and g0(w0,x0,x3); or g1(w1,x1,x2); nor gf(f,w0,w1);
(b) f=1 estrutural=or g0(w0,x3,x2); nor g1(w1,x1,x0); nor gf(f,w0,w1);
Q8.(a) f=0
(b) f=1
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P55
Q1. (a)Or (b)Nor (c)Xor
Q2. f=1
Q3. f=0
Q4. (a)f=0 eq=$f = x2\hat{}x1\hat{}x0$
(b). f=1 eq=$f = x3\&x1|x2\hat{}x0$
Q5.(a) f=1 estrutural=xnor g0(w0,x2,x1); xnor g1(w1,w0,x0);
(b) f=0 estrutural=xor g0(w0,x1,x2); nor g1(w1,w0,x3); nor g2(w2,w1,x0);
Q6.(a) f=1
(b) f=0
Q7.(a) f=0 estrutural=nor g0(w0,x2,x3); or g1(w1,x0,x1); nor gf(f,w0,w1);
(b) f=0 estrutural=nor g0(w0,x2,x0); nor g1(w1,x3,x1); and gf(f,w0,w1);
Q8.(a) f=1
(b) f=0
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-
P56
Q1. (a)Nor (b)Xnor (c)Or
Q2. f=1
Q3. f=1
Q4. (a)f=1 eq=$f = x2\&x1\hat{}x0$
(b). f=1 eq=$f = x1|x3\hat{}x0|x2$
Q5.(a) f=0 estrutural=xor g0(w0,x0,x1); nor g1(w1,w0,x2);
(b) f=0 estrutural=and g0(w0,x1,x0); xor g1(w1,w0,x2); xor g2(w2,w1,x3);
Q6.(a) f=1
(b) f=1
Q7.(a) f=1 estrutural=nand g0(w0,x1,x0); or g1(w1,x2,x3); and gf(f,w0,w1);
(b) f=1 estrutural=nor g0(w0,x2,x3); nor g1(w1,x1,x0); xor gf(f,w0,w1);
Q8.(a) f=0
(b) f=0
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P57
Q1. (a)Nand (b)Xnor (c)and
Q2. f=0

Q3. f=1
Q4. (a)f=1 eq=$f = x1|x2\hat{}x0$
(b). f=1 eq=$f = x3|x0\hat{}x2|x1$
Q5.(a) f=0 estrutural=and g0(w0,x0,x1); and g1(w1,w0,x2);
(b) f=0 estrutural=nand g0(w0,x0,x1); nand g1(w1,w0,x2); nor g2(w2,w1,x3);
Q6.(a) f=0
(b) f=1
Q7.(a) f=0 estrutural=nor g0(w0,x3,x2); nand g1(w1,x0,x1); nor gf(f,w0,w1);
(b) f=0 estrutural=xor g0(w0,x3,x2); nor g1(w1,x1,x0); or gf(f,w0,w1);
Q8.(a) f=1
(b) f=1
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P58

Q1. (a)Or (b)Xnor (c)Nand
Q2. f=1
Q3. f=0
Q4. (a)f=1 eq=$f = x2|x0|x1$
(b). f=1 eq=$f = x2\hat{}x3\&x1|x0$
Q5.(a) f=1 estrutural=xor g0(w0,x1,x0); or g1(w1,w0,x2);
(b) f=1 estrutural=nor g0(w0,x0,x1); or g1(w1,w0,x3); or g2(w2,w1,x2);
Q6.(a) f=1
(b) f=1
Q7.(a) f=1 estrutural=xor g0(w0,x2,x0); nor g1(w1,x3,x1); nand gf(f,w0,w1);
(b) f=1 estrutural=xnor g0(w0,x1,x2); xor g1(w1,x0,x3); or gf(f,w0,w1);
Q8.(a) f=1
(b) f=1
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P59

Q1. (a)Nand (b)Xnor (c)Xor
Q2. f=0
Q3. f=0
Q4. (a)f=1 eq=$f = x2\&x1|x0$
(b). f=1 eq=$f = x1|x2|x0\&x3$
Q5.(a) f=1 estrutural=or g0(w0,x2,x1); nand g1(w1,w0,x0);
(b) f=1 estrutural=or g0(w0,x3,x1); xnor g1(w1,w0,x0); xnor g2(w2,w1,x2);
Q6.(a) f=1
(b) f=1
Q7.(a) f=1 estrutural=nor g0(w0,x2,x0); xnor g1(w1,x1,x3); or gf(f,w0,w1);
(b) f=1 estrutural=or g0(w0,x0,x3); nand g1(w1,x1,x2); or gf(f,w0,w1);
Q8.(a) f=0
(b) f=0
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P60

Q1. (a)Nand (b)Or (c)and
Q2. f=0
Q3. f=1
Q4. (a)f=1 eq=$f = x1|x0\&x2$
(b). f=1 eq=$f = x2|x1|x0\hat{}x3$
Q5.(a) f=0 estrutural=nand g0(w0,x2,x0); nand g1(w1,w0,x1);
(b) f=0 estrutural=and g0(w0,x3,x1); or g1(w1,w0,x2); nor g2(w2,w1,x0);

Q6.(a) f=1
(b) f=1
Q7.(a) f=1 estrutural=xor g0(w0,x2,x0); and g1(w1,x3,x1); or gf(f,w0,w1);
(b) f=0 estrutural=and g0(w0,x0,x3); nor g1(w1,x1,x2); xnor gf(f,w0,w1);
Q8.(a) f=0
(b) f=1
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P61

Q1. (a)and (b)Nor (c)Or
Q2. f=0
Q3. f=1
Q4. (a)f=0 eq=$f = x1|x0\&x2$
(b). f=1 eq=$f = x0|x1|x3|x2$
Q5.(a) f=1 estrutural=or g0(w0,x0,x1); xnor g1(w1,w0,x2);
(b) f=1 estrutural=nand g0(w0,x2,x1); or g1(w1,w0,x0); xnor g2(w2,w1,x3);
Q6.(a) f=0
(b) f=1
Q7.(a) f=0 estrutural=xnor g0(w0,x1,x3); or g1(w1,x2,x0); nor gf(f,w0,w1);
(b) f=0 estrutural=or g0(w0,x2,x1); nand g1(w1,x0,x3); nor gf(f,w0,w1);
Q8.(a) f=0
(b) f=0