## **5321 Homework 2.4a**

a)

a + b'c'

				_		
а	b	С	a + b'c'			
F	F	F	Т		_	
F	F	Т	F	d d		
F	Т	F	F			
F	Т	Т	F			c/d
Т	F	F	Т		С	
Т	F	Т	Т			
Т	Т	F	T	<b>←</b>		_
Т	Т	Т	Т	<b>-</b>		

1. Condition/Decision coverage: (FFT,TTF)

Condition coverage: (FFF,TTT)

Decision coverage: (FFF,FFT)

2. TOF: b'c', a

TNF: a'+b'c', a+b+c

b)

a(c + d) = ac + ad

a c d ac+ad	
a   0   a   a   a   a   a   a   a   a	
F F F F	1
F F T F	
F T F F	d
F T T F	c c/d
T F F F	
T F T T	J
T T F T	
T T T T	

1. Condition/Decision coverage: (FFF,TTT)

Condition coverage: (FTT,TFF)

Decision coverage: (FFF,TFT)

2. TOF: ac, ad

TNF: a' + c' + ad, ac + a' + d'

c)

ab + c' + d

a         b         c         d         ab+c'+d           F         F         F         F         T           F         F         F         T         T         T           F         F         T         T         T         T         T         T         F         F         T         T         T         F         F         T </th <th></th> <th></th> <th></th> <th></th> <th></th> <th>_</th> <th></th> <th></th>						_		
F         F         F         T         T         D         d         C         F         F         F         F         F         F         F         F         F         T         T         T         T         F         F         T	a	b	С	d	ab + c' + d			
F         F         T         F         F           F         F         T         T         T           F         T         F         F         T         T           F         T	F	F	F	F	Т		1	
F         F         T         T         T         T         F         T         T         T         T         F         T	F	F	F	Т	Т	d		
F         T         F         F         T         T         F         T         T         T         F         T	F	F	Т	F	F			
F         T         F         T         T         F         F         F         F         F         F         F         F         F         T	F	F	Т	Т	Т			
F         T         T         F         F           F         T	F	Т	F	F	Т			
F         T         T         F         F           F         T         T         T         T           T         F         F         T         T           T         F         T         T         T           T         T         F         T         T           T         T         F         T         T           T         T         F         T         T           T         T         T         F         T           T         T         T         F         T	F	Т	F	Т	Т		_	
T F F F T T F F T T T F T T T T T F F T T T T T F T T T T T F T T	F	Т	Т	F	F			
T         F         F         F         T           T         F         F         T         T           T         F         T         T         T           T         T         F         T         T           T         T         F         T         T           T         T         T         F         T           T         T         T         F         T	F	Т	Т	Т	Т			c/4
T         F         T         F           T         F         T         T           T         T         F         F           T         T         F         T           T         T         T         T	Т	F	F	F	Т			c, u
T         F         T         T           T         T         F         F         T           T         T         F         T         T           T         T         T         F         T	Т	F	F	Т	Т			
T         T         F         F         T           T         T         F         T         T           T         T         T         F         T	Т	F	Т	F	F			
T T F T T T T F T	Т	F	Т	Т	Т			
T T F T	Т	Т	F	F	Т			
	Т	Т	F	Т	Т	<b>-</b>		
T T T T	Т	Т	Т	F	Т			
	Т	Т	T	Т	T	<b>_</b>	_	

1. Condition/Decision coverage: (FFTF, TTFT)

Condition coverage: (FFFF,TTTT)
Decision coverage: (FFFF,FFTF)

2. TOF: c' + d, ab + c', ab + d

TNF: a' + b' + c' + d, ab + c + d, ab + c' + d'

## d) ab XOR (a + b)

$$= ab (a + b)' + (ab)' (a + b)$$

$$= ab (a'b') + (a' + b') (a + b)$$

$$= a'b + b'a$$

a	b	a'b + b'a		
F	F	F	<b>←</b> .	
F	Т	Т	<b>d</b> d	С
Т	F	Т	7	
Т	Т	F	<b></b>	)

1. Condition/Decision coverage: null

Condition coverage: (FF, TT)

Decision coverage: (FF, FT)

2. TOF: a'b, b'a

TNF: a +b' + b'a, a'b+ b + a'