COMP 5361 :Discrete Structures and Formal Languages
Winter 2017
Programming Assignment 1 Winter 2017

24600878 Kinyanjui, Wambui J

Q 3 truth tables to test program accuracy

Q3a				A	b	sol
	p	q	np	pORq	np^A	b->q
	0	0	1	0	0	1
	0	1	1	1	1	1
	1	0	0	1	0	1
	1	1	0	1	0	1

Q3b					A	B	C	sol
	p	r	np	nr	p->nr	np->nr	A^B	r^C
	0	0	1	1	1	1	1	0
	0	1	1	0	1	0	0	0
	1	0	0	1	1	1	1	0
	1	1	0	0	0	1	0	0

Q3c				a	c	b	d	sol
	p	q	r	q -> r	p->a	p -> q	b->r	c->d
	0	0	0	1	1	1	0	0
	0	0	1	1	1	1	1	1
	0	1	0	0	1	1	0	0
	0	1	1	1	1	1	1	1
	1	0	0	1	1	0	1	1
	1	0	1	1	1	0	1	1
	1	1	0	0	0	1	0	1
	1	1	1	1	1	1	1	1

Q 4 truth tables to test program accuracy

(p -> q) -> (r -> s) =? (p -> r) -> (q ->s)

				a	b	c		d	e	f
p	q	r	s	p -> q	r -> s	a->b		p -> r	q ->s	d ->e
0	0	0	0	1	1	1		1	1	1
0	0	0	1	1	1	1		1	1	1
0	0	1	0	1	0	0		1	1	1
0	0	1	1	1	1	1		1	1	1
0	1	0	0	1	1	1		1	0	0
0	1	0	1	1	1	1		1	1	1
0	1	1	0	1	0	0		1	0	0
0	1	1	1	1	1	1		1	1	1
1	0	0	0	0	1	1		0	1	1
1	0	0	1	0	1	1		0	1	1
1	0	1	0	0	0	1		1	1	1
1	0	1	1	0	1	1		1	1	1
1	1	0	0	1	1	1		0	0	1
1	1	0	1	1	1	1		0	1	1
1	1	1	0	1	0	0		1	0	0
1	1	1	1	1	1	1		1	1	1

The two propositions are not equal as their interpretations do not all equate to the same truth value