Hw 7 CS 222 Jeremiah Webb

1A.

nodes = {a, b, c}

R_A = {(a, a), (a, b), (b, b), (b, c), (c, c), (c, b), (c, a)}

b.

	a	b	c
a	1	1	0
b	0	1	1
c	1	1	1

c. Not symmetric, reflexive, not irreflexive, not asymmetric, not antisymmetric, transitive

2A.

$R = \{(1,3), (1,4), (2,1), (2,2), (3,1), (3,3), (4,1)\}$ on set

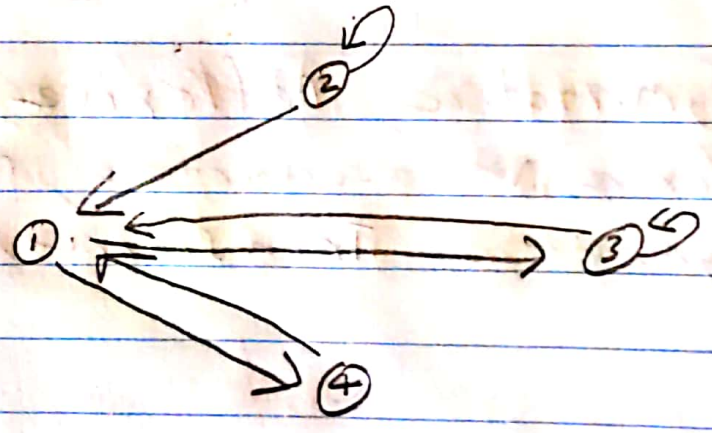
$A = \{1, 2, 3, 4\}$

	1	2	3	4
1	0	(0)	1	1
2	1	1	0	0
3	1	0	1	(0)
4	1	0	0	0

symmetric rule

	1	2	3	4
1	0	(0)	1	1
2	1	1	0	0
3	1	0	1	0
4	1	0	0	0

2B.



2C. Reflexive closure

{(1,3), (1,4), (2,1), (2,2), (3,1), (3,3)
(4,1), (1,1), (4,4)}

2D. Symmetric closure

{(1,3), (1,4), (2,1), (2,2) (3,1),
(3,3), (4,1), (1,2)}

2E. (4,3) (3,4)

{(1,3), (1,4), (2,1), (2,2), (3,1)
(3,3), (4,1), (4,3), (3,4)}