1 a) Domain of R = X

b) Range of R = Y

c) h(R) =

= 0.99

d) = y is much greater than x

2

m1

Irreflexive

Antisymmetric

Nontransitive

m2

Antireflexive

Asymmetric

Nontransitive

m3

Reflexive

Symmetric

Transitive

m4

Irreflexive

Asymmetric

Nontransitive

m5

Antireflexive

Asymmetric

Nontransitive

m6

Antireflexive

Asymmetric

Nontransitive

m7

Antireflexive

Asymmetric

Nontransitive

3

M1 o M2

[[0.6 0.6 0. ]

[0.3 0.3 0.1]

[0. 0.5 0.1]]

M2 o M3

[[0.6 0.6 0.6]

[0.1 0.6 0.1]

[0. 0.1 0. ]]

M4 o M5

[[0.3 0.6 0.2 1. ]

[0.4 0. 0.3 0.2]

[0.3 0.6 0.2 1. ]

[0.4 0. 0.3 0.2]]

M6 o M7

[[0.3 0.5 0.5 0.4]

[0.6 0.5 0.5 0.4]

[0.2 0.5 0.5 0.4]

[0.6 0.3 0.5 0.1]]

M1 o M2 o M3

[[0.6 0.6 0.6]

[0.3 0.3 0.3]

[0.1 0.5 0.1]]

4

M1 o M2

[[0.6 0.6 0. ]

[0.18 0.18 0.02]

[0. 0.3 0.05]]

M2 o M3

[[0.6 0.6 0.42]

[0.07 0.6 0.1 ]

[0. 0.1 0. ]]

M4 o M5

[[0.3 0.6 0.2 1. ]

[0.2 0. 0.3 0.08]

[0.3 0.6 0.2 1. ]

[0.2 0. 0.3 0.08]]

M6 o M7

[[0.12 0.35 0.35 0.28]

[0.6 0.35 0.35 0.28]

[0.06 0.25 0.25 0.2 ]

[0.6 0.09 0.3 0.03]]

M1 o M2 o M3

[[0.6 0.6 0.42 ]

[0.18 0.18 0.126]

[0.035 0.3 0.05 ]]