**Q1**

If my brother or my sister is not free, then my family and I will cancel the trip

**Q2**

**“If either Andrew or Bob lose and the Carman wins, then David will be disqualified, and I will win"**

If either A OR B lose AND C wins, then D disqualified AND I win

1. **Truth value =**

(A OR B) AND C -> D AND I

min(1, 1 - min(max(A,B), C) + min(D, I))

**b)**

A’ = 0.8, B = 0.6, C = 0.7, D = 0.5, Truth = 0.7

which means that 1 - min(max(A,B),C) + min(max(A,B),C) \* min(D,I) = 0.7

min(max(1-A’,B),C) = 0.6

1 - 0.6 + 0.6 \* min(0.5,I) = 0.7

0.6 \* min(0.5, I) = 0.7 - 0.4 = 0.3

min(0.5, I) = 0.3 / 0.6 = 0.5

Hence, I >= 0.5;

I = [0.5, 1]

**Q3**

**Let x = {“Age”: 22, “Height”: 72}**

a) t = min(old(x), tall(x)) = min(0, 1) = 0

b) t = max(more\_or\_less\_old(x), short(x)) = max(0.1, 0) = 0.1

c) t = max(old(father(x)), 1 - min(very\_young(x), tall(x))) = max(1, 1 – min(0.6, 1)) = 1

d) t = max(tall(x), 1 - not\_very\_young(x)) = max(1, 1 – 0.5) = 1

**Q4**

A = [.6, 1, .9]

B = [.6, 1]

A\_ = [.6, .9, 1]

Kleene-Dienes = [.4, .4 ]

Reichenbach = [.4, .4 ]

Lukasiewicz = [.4, .4 ]