Ans 1

(a). Similarity(A,B) = Cos(Q) = 4/5 = .8

(b). Similarity(A,B) = Cos(Q) = 0

(c). Similarity(A,B)

Words: WOOF MEOW SQUEAK  
 V1: 2 1 0  
 V2: 2 0 1  
 V3: 0 1 1  
Using idf weighing

Words: WOOF MEOW SQUEAK  
 V1: .352 .176 0  
 V2: .352 0 .176  
 V3: 0 .176 .176

V1: Woof = 2\*log(3/2) = .352  
V1: Meow=1\*log(3/2) = .176  
V1: Squeak=0\*log(3/2) = 0

V2: Woof = 2\*log(3/2) = .352  
V2: Meow=0\*log(3/2) = 0  
V2: Squeak=1\*log(3/2) = .176

V3: Woof = 0\*log(3/2) = .352  
V3: Meow=1\*log(3/2) = .176  
V3: Squeak=1\*log(3/2) = .176

Sim(A,B) = ((.352)\*(.352))/ ((.352)^2 + (.176)^2))  
 = .8

Ans(2)

(a).  P(+ | "great food served") = 0 and  P(- | "great food served") = 0

(b). Initially

Words: Great Food Served Terrible

-- : 0 5 1 5  
+ : 5 5 0 0  
  
Fin ally

Words: Great Food Served Terrible

-- : 1 6 2 6  
+ : 6 6 1 1

Total number of (+) documents: 6

Total number of (-) documents: 6  
(Great, Food, Served, Terrible)  
W = [1,1,1,0]  
P(+/W) = (6/6)\*(6/6)\*(1/6)\*(1/2)

= 1/12  
P(-/W) = (1/6)\* (6/6) \* (2/6) \* (1/2)

= 1/36  
  
Therefore P(+/W) > P(-/W)

Ans3

1st sentence: Dogs eat cat

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Sentence: dogs eat cat

Seeking sentence +

Seeking np +

Seeking n +

Seeking vp +

Seeking v +

Seeking v +

Seeking np +

Seeking n +

Sentence recognized.

2nd sentence: Dogs chases cat

Sentence: dogs chases cat

Seeking sentence +

Seeking np +

Seeking n +

Seeking vp +

Seeking v +

Seeking v +

Seeking np +

Seeking n +

Sentence recognized.

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