CSC 422/522 Exam 2 Solutions

1. Problem 1

    a) No, R1 and R3 might be triggered by the same car

    b) Yes, one of R3-R5 will be triggered

    c) Yes, see a)

    d) No, see b)

    e) Windshield Wipers: Broken → Low

    : Working → Engine: Good → High

    : Bad → Low

2. Problem 2

    a) True

    b) False

    c) False

    d) True

    e) False

3. Prolem 3

    a) False

    b) True

    c) A line with slope -1 and endpoints (at least on the given coordinate plane) at y = 1 and x = 1. The support vectors are parallel to this hyperplane, with one support vector going through the closest 2 positive instances and the other support vector passing through the negative instance.

    d) W = (2, 2) b = -1 {Or some multiple of this}

4. Problem 4

    a) ¼

5. Problem 5

   a) A = F, B = F, C = F, D = F, E = F

      AB = F, AC = I, AD = F, AE = F, BC = F, BD = F, BE = F, CD = F, CE = I, DE = F

      ABC = N, ABD = I, ABE = I, ACD = N, ACE = N, ADE = F, BCD = I, BCE = N, BDE = F, CDE = N

      ABCD = N, ABCE = N, ABDE = N, ACDE = N, BCDE = N

      ABCDE = N

   b) A = C, B = C, C = C, D = C, E = F

      AB = CM, AC = I, AD = F, AE = F, BC = CM, BD = C, BE = F, CD = CM, CE = I, DE = C

      ABC = I, ABD = I, ABE = I, ACD = I, ACE = I, ADE = CM, BCD = I, BCE = I, BDE = CM, CDE = I

      ABCD = I, ABCE = I, ABDE = I, ACDE = I, BCDE = I

      ABCDE = I