ITCS 6162 Midterm Exam

Problem 1. Find the set of representative rules RR(3,75%) for the set of transactions: (C,D,E,F,H,I), (B,C,D,E,I), (A,B,C,E,H), (A,B,C,D,H), (A,B,E,H,I) following Agrawal algorithm.

Problem 2. Discretize attributes A and B in the Decision Table T. {A, B} are classification attributes. D is the decision attribute.

X	A	B	D
x1	1	3	2
x2	1	5	1
x3	5	3	2
x4	3	8	1
x5	8	8	2
x6	5	8	1

Decision Table T

Solution: Dom(A):   1   3   5   8   Dom(B):   3   5   8

                              p1   p2   p3   q1   q2

Problem 3. Follow DEAR2 algorithm to construct action rules reclassifying objects from the class d0 to the class d1 in a decision system S. Table T shows classification rules extracted from S. These classification rules (r1-r9) should be used to construct action rules. Attributes a and b are stable.

	a	b	c	d
r1		2		0
r2	2	1		1
r3	2		1	0
r4	2		2	1
r5		1	1	1
r6		3	1	0
r7		3	2	1
r8	1	1	1	1
r9	1	1	2	0

Table T.

Problem 4. Let S = (X, {a, b, c, d}) be a decision system, where all attributes are flexible. Attribute d is the decision attribute. Find action rules in S reclassifying objects from the class d1 to d2 using action reducts.

X	a	b	c	d
x1	a3	b1	c1	d1
x2	a3	b2	c3	d2
x3	a1	b1	c1	d2
x4	a2	b1	c1	d1
x5	a1	b1	c3	d1
x6	a2	b2	c3	d2

System S