Due: Tuesday April 9 :

From the Text: Do the following problems from the text. Chapter 10: 20.

1) Consider a two player game of chicken. Each player has two possible types they are either crazy or sane. We call these types 1C, 1S, 2C, 2S. Each player knows their own type. We have the following common prior probability distribution on types

	2C	2S
1C	.1	.4
1S	.2	.3

For example, this means the probability that 1 is sane and 2 is crazy is .2 and the probability that probability that both are sane is .3.

    Each player decides wether to be aggressive or passive.

Player type	Player's action	Opponent's action	Payoff
Crazy	A	A	0
Crazy	A	P	5
Crazy	P	A	-10
Crazy	P	P	-5
Sane	A	A	-10
Sane	A	P	5
Sane	P	A	-5
Sane	P	P	0

    So for, example if 1C plays A and 2S plays P the payoff is 5 for Player 1 and -5 for Player 2.

    a) Right down the four payoff matricies for the game where each type of Player 1 plays against each type of Player 2.

    b) Calculate the posterior probabilities: $Pr(2C|1C)$, $Pr(2C|1S)$, $Pr(1C|2C)$ and $Pr(1C|2S)$.

    c) Does either type of either Player have a strictly dominant strategy? Explain.

    d) Find all pure strategy Bayes-Nash equilibria.

2) Suppose there are six hospitals H1, H2,..., H6 and six medical students S1, S2, ..., S6 and the following tables give the preference for each hospital and student.

Hospital Preferences

hospital	first choice	second choice	third choice	fourth choice	fifth choice	sixth choice
H1	S1	S6	S5	S4	S2	S3
H2	S6	S2	S1	S3	S5	S4
H3	S1	S5	S4	S6	S3	S2
H4	S2	S4	S6	S1	S5	S3
H5	S6	S2	S3	S1	S4	S5
H6	S1	S6	S2	S3	S4	S5

Student Preferences

student	first choice	second choice	third choice	fourth choice	fifth choice	sixth choice
S1	H6	H3	H5	H2	H4	H1
S2	H5	H4	H1	H3	H6	H2
S3	H6	H3	H4	H5	H2	H1
S4	H1	H5	H6	H2	H3	H4
S5	H2	H5	H4	H1	H3	H6
S6	H2	H1	H4	H3	H6	H5

Use the usual Gayle-Shapley algorithm (where hospitals make offers) to find a stable matching. Show which proposals are made at each stage and which are declined.