ECON 204 Sec. 2
Quiz 7
Dr. Kevin Hasker

1. *(2 Points)* Please read and sign the following statement:

   I promise that my answers to this test are based on my own work without reference to any notes, books, or the assistance of any other person during the test. I further promise not to aid others nor use any electronic device, including calculators.

   Name and Surname: _
   Student ID: _
   Signature:

   _

2. *(6 points)* What does it mean to be pivotal? In an election with one winner like President, if someone is voting as if they are pivotal what does it tell us about how they will behave?

   Solution 1 *To be* pivotal *means that if one person changes their vote the outcome of the election will change.*

   It tells us they will "choose the lesser of two evils" i.e. they will choose the two candidates they think most likely to win and vote for whichever one of them they like more—no matter how little they like both candidates.

3. *(12 points total)* Consider the following economy with five outcomes and five people:

1	2	3	4	5
A	E	D	B	E
D	D	B	A	D
E	B	A	D	A
B	C	E	E	C
C	A	C	C	B

	1	2	3	4	5	Tot
A	4	0	2	3	2	11
D	3	3	4	2	3	15
E	2	4	1	1	4	12
B	1	2	3	4	0	10
C	0	1	0	0	1	2

b E   1
c D
y is B
z is C

1	2	3	4	5
E	C	B	D	C
B	B	D	E	B
C	D	E	B	E
D	A	C	C	A
A	E	A	A	D

	1	2	3	4	5	Tot
E	4	0	2	3	2	11
B	3	3	4	2	3	15
C	2	4	1	1	4	12
D	1	2	3	4	0	10
A	0	1	0	0	1	2

b C   2
c B
y is D
z is A

1	2	3	4	5
B	D	C	A	D
C	C	A	B	C
D	A	B	C	B
A	E	D	D	E
E	B	E	E	A

	1	2	3	4	5	Tot
B	4	0	2	3	2	11
C	3	3	4	2	3	15
D	2	4	1	1	4	12
A	1	2	3	4	0	10
E	0	1	0	0	1	2

b D   3
c C
y is A
z is E

1	2	3	4	5		1	2	3	4	5	Tot		b	E	4
D	E	A	C	E	D	4	0	2	3	2	11		c	A	
A	A	C	D	A	A	3	3	4	2	3	15		y is	C	
E	C	D	A	D	E	2	4	1	1	4	12		z is	B	
C	B	E	E	B	C	1	2	3	4	0	10				
B	D	B	B	C	B	0	1	0	0	1	2				

(a) *(4 points)* If we use the bordo count rule, where the count of a rank is the number of options it beats, which option will win the election? You may use the table below:

	1	2	3	4	5	Tot
A						
B						
C						
D						
E						

Solution 2 *You can see the totals per option listed above, apologies that I did not permute the rows to put them in the same order.*

(b) *(2 points)* If everyone votes truthfully, what outcome will win the election?

Solution 3 *It will be the best option for person 2, which is written beside the Bordo Count table by the "b" above.*

(c) *(2 points)* Don't put too much work into it, but can you guess what the Condorcet winner is?

Solution 4 *It will be the second best option for person 1, written above by "c" next to the Bordo Count table.*

(d) *(4 points)* If people vote strategically, explain how y can win the election.

Solution 5 *Their are intentionally two possible answers here.*

   i. *If people use "follow the leader" strategies and everyone believe they will vote for y (the fourth best option for person 1, and also written by "y is" to the right of each table) then no one person can change the outcome of the election and y will win.*

   ii. *If people vote as if they are pivotal, well in an election between y and z y will win a majority of the votes. Thus if everyone believes y and z are the two viable candidates, y will win.*