Quiz 6
Wednesday, March 28.

NAME _____

1.A five-member evaluating committee votes by approval voting on 10 faculty members for a promotion as indicated by the table below. An "X" indicates an approval vote.

Approval ballots

Candidates					
A	X		X	X	X
B	X	X	X	X	X
C			X		X
D		X	X	X	
E	X		X		X
F	X				X
G		X	X	X	
H		X		X	
I	X		X	X	
J		X	X	X	X

(a) Which candidate wins if just one of them is to be promoted?

(b) Which candidate(s) receive promotion if 80 percent approval is needed?

2.(a) Calculate C_2^5.

(b) If there are 5 voters in a voting system, how many different combinations of YES and NO votes can there be?

(c) How many votes are needed for a majority winner if there are 30 voters?

(d) In how may different ways can one rank 5 candidates if no ties are allowed?

3. An eleven-member committee must choose one of the four applicants K,L,M and N for membership on the committee. The committee members have preferences among the candidates as given below. If the committee uses pairwise sequential voting with the agenda K,L,M,N then applicant K wins. Can the three voters who least prefer K vote strategically in some way to change the outcome to one they find more favorable? Why or why not?

Number of delegates

	6	2	3
First choice	K	M	M
Second choice	L	L	N
Third choice	N	K	L
Fourth choice	M	N	K

4. Thirty board members must vote on five candidates X,Y,Z.U and V. Their preference rankings are summarized in the table below. Find the winner (or explain why there is none) if the following systems are applied.

Number of votes

	12	10	8
First choice	X	Y	Z
Second choice	U	Z	U
Third choice	Y	X	X
Fourth choice	Z	U	V
Fifth choice	V	V	Y

(a) Condorcet method.

(b) Borda count.

(C) Hare system.

(d) Sequential pairwise voting with agenda X,Y,Z,U,V.

(e) Plurality voting.