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Ideas in Math: MAT-201

Assignment #5

1. One of the desirable properties of majority rule is that both candidates are treated equally. This property is not satisfied by a(n)
- A. Dictatorship.
 - B. Imposed rule.
 - C. Minority rule.

Ans:

2. Condorcet's method is an effective way to make a choice among
- A. Two alternatives.
 - B. A small number of alternatives.
 - C. Any number of alternatives.

Ans:

3. Twelve committee members need to elect a chair from the candidates A, B, and C. The preferences of the committee members follow. Which candidate will be selected if they use Condorcet's Method?

	4 members	3 members	5 members
1st choice	A	B	C
2nd choice	C	A	B
3rd choice	B	C	A

- A. Candidate C.
- B. Candidates A and B are tied.
- C. There is no winner.

Ans:

4. Eleven committee members need to elect a chair from candidates A, B, C, and D. The preferences of the committee members follow. Which candidate will be selected if they use Borda Count?

	4 members	3 members	4 members
1st choice	B	C	D
2nd choice	A	B	C
3rd choice	D	D	B
4th choice	C	A	A

- A. Candidate B.
- B. Candidate D.
- C. Candidates B and D are tied.

Ans:

5. Eleven committee members need to elect a chair from the candidates A, B, C, and D. The preferences of the committee members follow. Given the agenda: A, C, B, D, which candidate will be selected if they use sequential pairwise voting?

	4 members	3 members	4 members
1st choice	B	C	D
2nd choice	A	B	C
3rd choice	D	D	B
4th choice	C	A	A

- A. Candidate B.
- B. Candidate D.
- C. Candidates B and D are tied.

Ans:

6. Eleven members must elect a president of their club. Preferences among candidates A, B, C, and D follow. Which candidate is the winner using the Hare system?

	6 members	2 members	3 members
1st choice	B	C	D
2nd choice	A	B	C
3rd choice	D	D	B
4th choice	C	A	A

- A. Candidate B with 8 points.
- B. Candidate B with 6 points.
- C. There is no winner.

Ans:

7. Which of the following voting methods is not monotone?

- A. Hare system.
- B. Plurality runoff method.
- C. Both A and B.

Ans:

8. Which of the following voting methods satisfies the Condorcet winner criteria but does not satisfy the Pareto condition?

	CWC	IIA	PC	M
Plurality	NO	NO	YES	YES
Borda Count	NO	NO	YES	YES
Sequential Pairwise	YES	NO	NO	YES
Hare System	NO	NO	YES	NO

- A. Sequential pairwise voting.
- B. Hare system.
- C. Plurality voting.

Ans:

9. Which of the following voting methods satisfies the independence of irrelevant alternatives condition?

	CWC	IIA	PC	M
Plurality	NO	NO	YES	YES
Borda Count	NO	NO	YES	YES
Sequential Pairwise	YES	NO	NO	YES
Hare System	NO	NO	YES	NO

- A. Borda count.
- B. Hare system.
- C. Neither A nor B.

Ans:

10. A local International Brotherhood of Electrical Workers (IBEW) union consisting of 110 members must select three representatives to send to a regional union meeting. A ballot was sent out to all local members of the IBEW listing the five nominees. Members were to indicate which three of the five nominees they found acceptable and return the ballot. The results are shown in the following table. Using approval voting, which three nominees were selected?

nominees	21 members	27 members	20 members	19 members	23 members
A	X	X		X	
B		X	X		X
C	X		X		X
D		X		X	X
E	X		X	X	

- A. Nominees A, B, and D.
- B. Nominees A, B, and C.
- C. Nominees A, C, and D.