

MA 110 Quiz 2

Multiple Choice. Choose the one alternative that best completes the statement or answers the question. Put the **letter** of your answer in the box provided.

Table 1.1 below describes an election with four candidates (A, B, C, D) and preference schedule:

Number of Votes	9	8	2	1
1 st Choice	D	B	B	D
2 nd Choice	B	C	A	A
3 rd Choice	A	A	D	B
4 th Choice	C	D	C	C

B 1. In Table 1.1, which candidate wins the election by the method of pairwise comparisons?

- a. A
- b. B
- c. C
- d. D
- e. There is a tie.

A vs B	1-19	B 1	Total Points
A vs C	12-8	A 1	A 1.5
A vs D	10-10	A ½ D ½	B 2.5
B vs C	20-0	B 1	C 0
B vs D	10-10	B ½ D ½	D 2
C vs D	8-12	D 1	Winner is B

B 2. Using the plurality method, there is a tie in the election in Table 1.1. Which candidate wins the tie-breaker if you use bottom-up comparison?

- a. A
- b. B
- c. C
- d. D
- e. There is still a tie.

<p style="color: red; margin: 0;">B and D are tied with 10 first place votes each. Last place votes: B-0, D-8. B wins.</p>
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F 3. Consider the weighted voting system [6: 3, 3, 1, 1]. Which player, if any, has veto power?

- a. P₁
- b. P₂
- c. P₃
- d. P₄

<p style="margin: 0;">Both P₁ and P₂ have veto power.</p>

- e. No player has veto power.
- f. More than one player has veto power.

C 4. Consider the weighted voting system [q: 4, 3, 2, 1, 1]. The smallest reasonable value the quota q can take is

- a. 4
- b. 5
- c. 6
- d. 7

<p style="margin: 0;">The sum of the weights is 11. The quota must be more than half that.</p>
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- e. 8
- f. 9
- g. 10
- h. 11