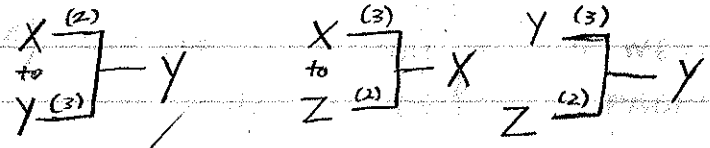


10/10

1)

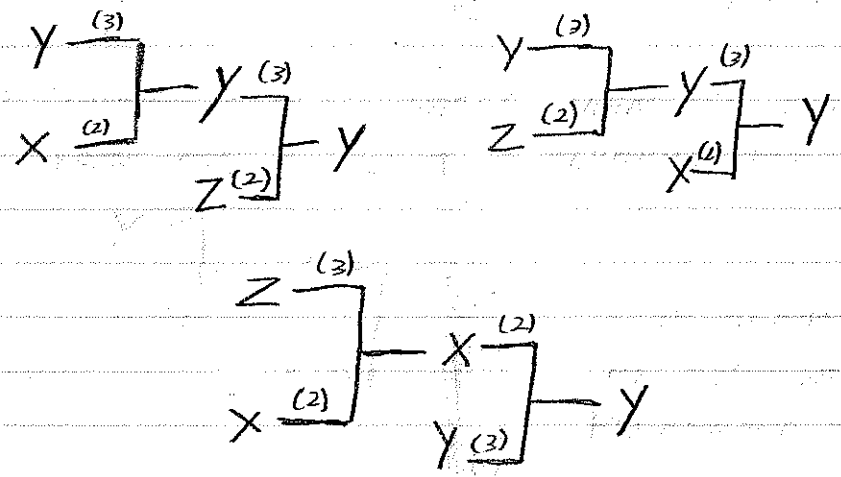
	INDIVIDUAL				
	A	B	C	D	E
PREFERENCE	X	X	Y	Z	Y
RANKING	Y	Z	X	Y	Z
	Z	Y	Z	X	X

A) USE PAIRWISE COMP. & MAJORITY VOTE



THE GROUP PREFERENCES AND THE RANKING ARE
 $Y > X > Z$ where $>$ = preferred to

B) USE A SEQUENTIAL VOTING SCHEME



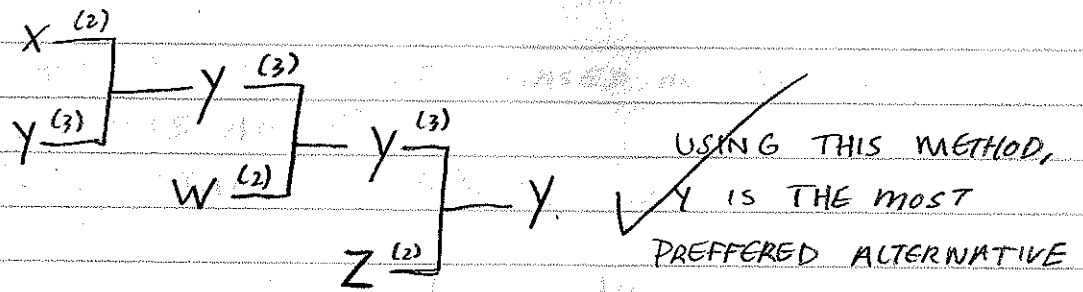
THIS SCHEME SHOWS THAT Y IS THE MOST PREFERRED ALTERNATIVE

INDIVIDUAL

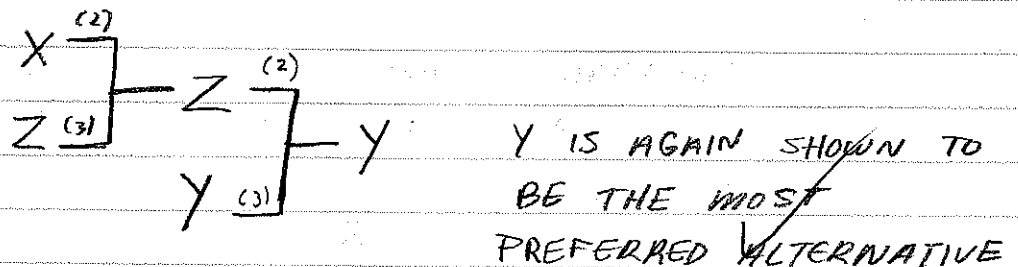
2)

	A	B	C	D	E
	X	W	Y	Z	Y
PREFERENCE	Y	Z	W	W	Z
RANKING	Z	Y	X	X	W
	W	X	Z	Y	X

A) USE THE SEQUENTIAL VOTING METHOD FROM FIG. 2.11(a) TO DETERMINE PREFERRED ALTERNATIVE



B) SUPPOSE B IS ELIMINATED, THEN USE SEQ. VOTING FROM FIG. 2.10(b) TO DETERMINE THE M.P.A.



3)

	INDIVIDUAL					
	A	B	C	D	E	PTS
PREFERENCE	X	X	Y	Z	Y	3
RANKING	Y	Z	X	Y	Z	2
	Z	Y	Z	X	X	1

USE THE BORDA COUNT PROCESS FROM EX. 2.12 TO DETERMINE THE GROUP PREFERENCE RANKINGS

FIRST ASSIGN POINTS BASED ON POSITION (DONE ABOVE)

NOW, TOTAL THE POINTS

$$X = 3 + 3 + 2 + 1 + 1 = 10$$

$$Y = 2 + 1 + 3 + 2 + 3 = 11$$

$$Z = 1 + 2 + 1 + 3 + 2 = 9$$

HIGHEST POINTS = MOST PREFERRED, THUS THE GROUP PREFERENCE RANKING

IS:

$Y > X > Z$ ✓

4)

	INDIVIDUALS					
	A	B	C	D	E	<u>PTS</u>
PREFERENCE	X	W	Y	Z	Y	4
RANKING	Y	Z	W	W	Z	3
	Z	Y	X	X	W	2
	W	X	Z	Y	X	1

USE THE BORDA COUNT METHOD FROM EX 2.12 TO DETERMINE THE GROUP PREFERENCE RANKING

ASSIGN POINTS (DONE ABOVE) AND TOTAL FOR EACH ALTERNATIVE

$$W = 1 + 4 + 3 + 3 + 2 = 13$$

$$X = 4 + 1 + 2 + 2 + 1 = 10$$

$$Y = 3 + 2 + 4 + 1 + 4 = 14$$

$$Z = 2 + 3 + 1 + 4 + 3 = 13$$

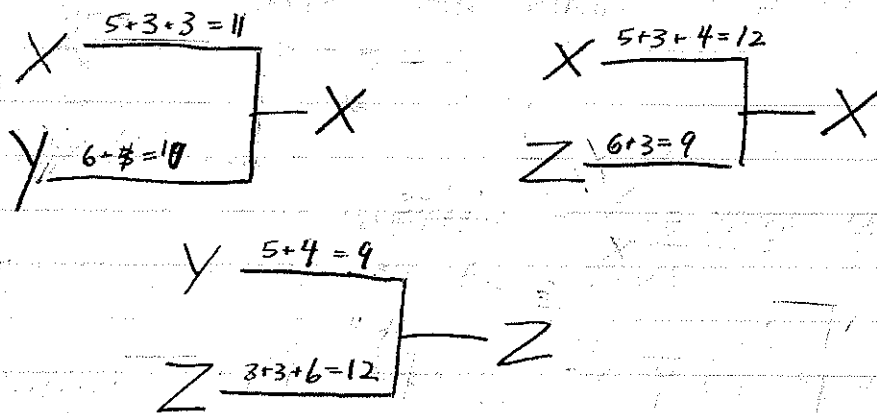
USING THIS PROCESS, WE SEE THAT Y IS THE MOST PREFERRED AND X IS THE LEAST, HOWEVER, WE CANNOT MAKE A PREFERENCE DISTINCTION BETWEEN W + Z.

So, there is no group preference ranking

6)

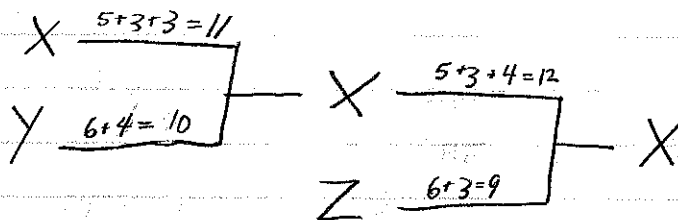
	NUMBER OF INDIVIDUALS				
PREFERENCE RANKING	5	3	3	6	4
X	X	X	Z	Z	Y
Y	Y	Z	X	Y	X
Z	Z	Y	Y	X	Z

A) USE PAIRWISE COMPARISONS + SIMPLE-MAJORITY VOTE TO DETERMINE (IF POSSIBLE) A GROUP PREF. RANKING AND MOST PREF. ALT.



BY THIS METHOD, THE GROUP PREF. RANKING IS AS FOLLOWS. $X > Z > Y$ WHERE X IS THE MOST PREFERRED ALTERNATIVE

B) USE SEQ. VOTING AS IN FIG. 2.10(a) TO FIND THE MOST PREFERRED ALTERNATIVE



THE MOST PREFERRED ALTERNATIVE IS AGAIN X USING THIS METHOD

7)

	NUMBER OF INDIVIDUALS				
	5	3	3	6	4
PREFERENCE RANKING	X	X	Z	Z	Y
	Y	Z	X	Y	X
	Z	Y	Y	X	Z

A) USE THE PLURALITY METHOD TO FIND THE MOST PREFERRED ALTERNATIVE

USING PLURALITY, THE ALTERNATIVE ONLY GET "POINTS" FOR FIRST PLACE VOTES

$$X = 5 + 3 = 8$$

$$Y = 4 = 4$$

$$Z = 3 + 6 = 9$$

USING THIS METHOD, ~~Z~~ IS THE MOST PREFERRED ALTERNATIVE

B) REPEAT THE PROCESS IF Y IS ELIMINATED

	NUMBER OF INDIVIDUALS				
	5	3	3	6	4
PREFERENCE RANKING	X	X	Z	Z	X
	Z	Z	X	X	Z

$$X = 5 + 3 + 4 = 12$$

$$Z = 3 + 6 = 9$$

WITH ~~Y~~ ELIMINATED, USING PLURALITY, X BECOMES THE MOST PREFERRED ALTERNATIVE

14) SUPPOSE THERE ARE 3 INDIVIDUALS, 4 ALTERNATIVES, AND THE DECISION PROCESS IS TO DETERMINE FAIRWISE GROUP PREFERENCES USING SIMPLE MAJORITY VOTE. FIND EXAMPLES OF PREFERENCE SCHEDULES FOR WHICH.....

A) THERE IS A MAJORITY VOTE

WINNER & NO INTRANSITIVITY

	A	B	C
Z	Z	Z	X
W	W	X	W
X	X	Y	Z
Y	Y	W	Y

$Z > W, X, Y$
 $X > W, Y$
 $W > Y$
 $Z > X > W > Y$

B) THERE IS A MAJORITY VOTE

WINNER & THERE IS INTRANSITIVITY AMONG THE REMAINING THREE

	A	B	C
Z	Z	Z	X
W	W	Y	Y
X	X	W	W
Y	Y	X	Z

$Z > W, X, Y$
 $Y > W$
 $X > Y$
 $W > X$

$Z > Y > W > X > Y > W \dots$
 INTRANSITIVE ✓

C) THERE IS INTRANSITIVITY AMONG ALL 4 ALTERNATIVES

	A	B	C
X	X	Z	Y
W	W	W	Z
Y	Y	X	W
Z	Z	Y	X

$W > Y, X$
 $X > Y$
 $Y > Z$
 $Z > X, W$

$X > Y > Z > W > X > Y > Z > W \dots$

D) THERE IS INTRANSITIVITY AMONG THREE ALTERNATIVES, & NO MAJORITY VOTE WINNER

	A	B	C
W	X	Y	
Z	W	X	
Y	Z	W	
X	Y	Z	

$W > X, Y, Z$

$X > Z$

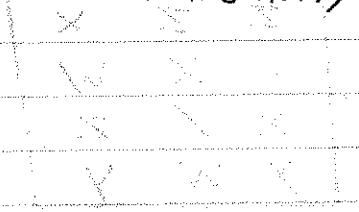
$Y > X$

$Z > Y$

$W > X > Z > Y > X > Z > Y$

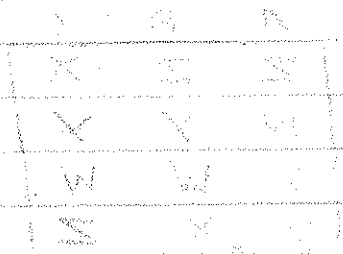
INTRANSITIVITY

$W > X > Z$
 $X > Z > Y$
 $Y > X > Z$



$W > X > Z > Y > X > Z > Y$

$W > X$
 $X > Z$
 $Z > Y$
 $Y > X$



$W > X > Z > Y > X > Z > Y$

$W > X$
 $X > Z$
 $Z > Y$
 $Y > X$

