Exam: Module 10 Quiz
Submitted: 10/13/2022 08:21:01 PM
Student: moises marin martinez
Attempt: 1

Score

Your score on this attempt: 5.000 out of a possible 5 (100.00%)
Graded Score: 5 out of a possible 5 (100.00%)
Completion Time: 12 minutes 44 seconds

Question 1:
You are in charge of developing a schedule for manning the tournament t-shirt table at an upcoming youth baseball tournament. This tournament runs four days - Friday through Monday.
The committee you chair decides that it needs to develop a staffing plan based on having parents work 2 of the four days - in other words, shifts will constitute a combination of 2 of the 4 days. Upon further reflection, the shift "Sat-Sun" will not be utilized, so shifts will have at most one of the weekend days.
Each possible combination of shift represents a decision variable in a rostering/staffing model - how many do you need to model all possible allowed shifts?

Type: Multiple Choice

Points Awarded: 1.000/1.000

User Answer(s):

5

Correct Answer(s) :

4

5 (correct)

6

12

Question 2:
Starducks wishes to blend together four types of foundation coffee (REG, DARK1, DARK2, VAN) to make two kinds of specialty coffee: "It's To Quack For" (ITQF) and "All-Star Flavored Coffee" (AFLAC). One pound of ITQF is made up of EXACTLY 0.3 lbs of REG, 0.2lbs of DARK1, 0.4 lbs. of DARK2, and 0.1 lbs. of VAN. One pound of AFLAC consists of EXACTLY 0.2 lbs of REG, 0.5 lbs. of DARK1, 0.1 lbs of DARK2 and 0.2lbs of VAN. We need to blend at least 200 lbs. of each coffee, while minimizing cost and meeting a bunch of other requirements too ...
How many changing cells (Decision variables) are necessary to determine the optimal way to make coffee?

Type: Multiple Choice

Points Awarded: 1.000/1.000

User Answer(s):

2

Correct Answer(s) :

2 (correct)

4

6

8

Question 3:
Starducks wishes to blend together four types of foundation coffee (REG, DARK1, DARK2, VAN) to make two kinds of specialty coffee: "It's To Quack For" (ITQF) and "All-Star Flavored Coffee" (AFLAC). There is flexibility in blending the coffees, but there are some specific requirements. We need to blend at least 200 lbs. of each coffee, while minimizing cost and meeting a bunch of other requirements like robustness and color, demand, etc. ...
How many changing cells (Decision variables) are necessary to determine the optimal way to make coffee?

Type: Multiple Choice

Points Awarded: 1.000/1.000

User Answer(s):

8

Correct Answer(s) :

2

4

6

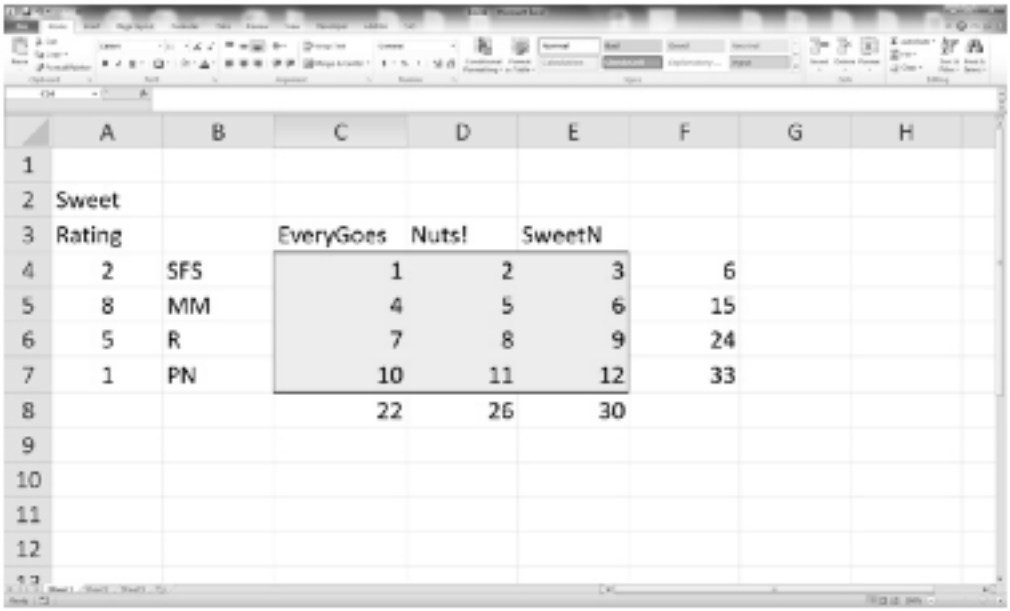
8 (correct)

Question 4:
Cedar Oaks Estates Neighborhood Garage Sale – Trail Mix Sales

On a weekend in October, Cedar Oaks Estates is planning a neighborhood wide garage sale. At the main gate, they will also be selling three different kinds of trail mix in snack size sandwich bags. Prior to the event, you are in charge of optimally blending together the four ingredients, Sunflower Seeds (SFS), M&M's (MM), Raisins (R)and Peanuts (PN) in making the three different kinds of trail mix (Everything Goes, Nuts! and Sweetness).

<Omitted info about cost and revenue, but it would go here! Also, info about min and max production, min and max available of the four ingredients, etc. would also go here – it is not relevant for our questions. >

Here is a template of the decision variable matrix you would need to create and solve an LP model for this situation. The decision variables are in yellow, the numbers are just a 'dummy' solution, and column F and row 8 have a formula entered (which you can determine from the calculations).



	A	B	C	D	E	F	G	H
1								
2	Sweet							
3	Rating		EveryGoes	Nuts!	SweetN			
4	2	SFS	1	2	3	6		
5	8	MM	4	5	6	15		
6	5	R	7	8	9	24		
7	1	PN	10	11	12	33		
8			22	26	30			
9								
10								
11								
12								

Each of the 4 ingredients must make up at least 20% of the total mix for Everything Goes. Using EXCEL formulas, identify the proper way to state the constraint. Using EXCEL formulas, what is the only possible way of your choices below to implement this in the linear Solver?

Type: Multiple Choice

Points Awarded: 1.000/1.000

User Answer(s):

C4:C7 >= .2*C8

Correct Answer(s) :

C4:C7/C8 >= .2

C4/C8 >= .2 ; C5/C8 >= .2; C6/C8 >= .2, C7/C8 >= .2

.2*(C4:C7) >= C8

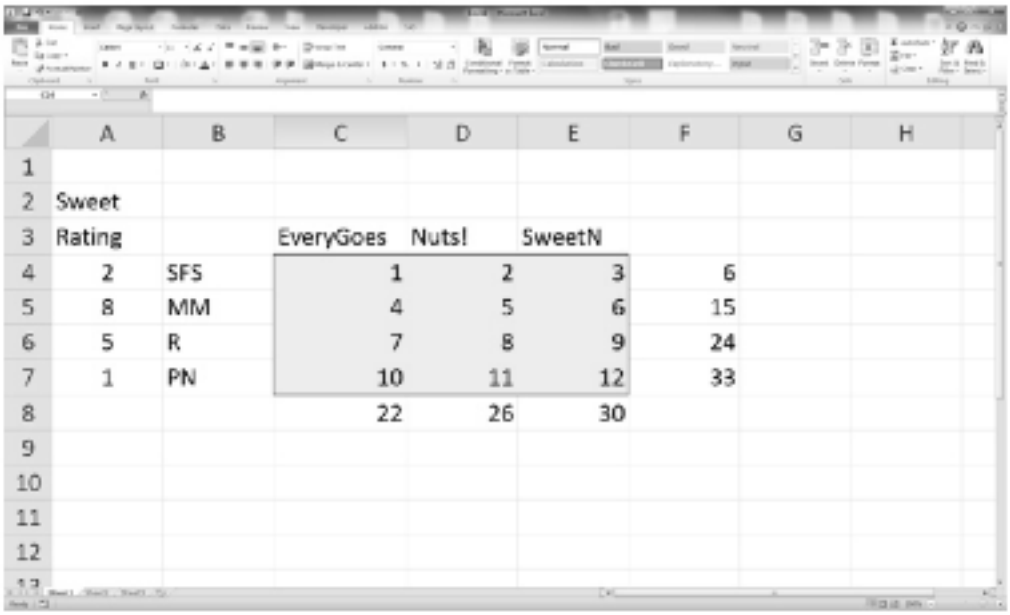
C4:C7 >= .2*C8 (correct)

Question 5:
Cedar Oaks Estates Neighborhood Garage Sale - Trail Mix Sales

On a weekend in October, Cedar Oaks Estates is planning a neighborhood wide garage sale. At the main gate, they will also be selling three different kinds of trail mix in snack size sandwich bags. Prior to the event, you are in charge of optimally blending together the four ingredients, Sunflower Seeds (SFS), M&M's (MM), Raisins (R)and Peanuts (PN) in making the three different kinds of trail mix (Everything Goes, Nuts! and Sweetness).

<Omitted info about cost and revenue, but it would go here! Also, info about min and max production, min and max available of the four ingredients, etc. would also go here - it is not relevant for our questions. >

Here is a template of the decision variable matrix you would need to create and solve an LP model for this situation. The decision variables are in yellow, the numbers are just a 'dummy' solution, and column F and row 8 have a formula entered (which you can determine from the calculations).



	A	B	C	D	E	F	G	H
1								
2	Sweet							
3	Rating		EveryGoes	Nuts!	SweetN			
4	2	SFS	1	2	3	6		
5	8	MM	4	5	6	15		
6	5	R	7	8	9	24		
7	1	PN	10	11	12	33		
8			22	26	30			
9								
10								
11								
12								
13								

The average sweetness rating (Column A) of the entire total Sweetness product produced must be greater than or equal to 5.8. Using EXCEL formulas, identify the proper way to state the constraint. Using EXCEL formulas, what is the only possible way of your choices below to implement this in the linear Solver?

Type: Multiple Choice

Points Awarded: 1.000/1.000

User Answer(s):

SUMPRODUCT(E4:E7, A4:A7) >= 5.8* E8

Correct Answer(s) :

SUMPRODUCT(E4:E7, A4:A7) >= 5.8

SUMPRODUCT(E4:E7, A4:A7)/E8 >= 5.8

SUMPRODUCT(E4:E7, A4:A7) >= 5.8* E8 (correct)

SUMPRODUCT(E4:E7, A4:A7)/E8 <= 5.8