Name: (please print) _____

Exam 2
BUAD311 – Operations Management
Professor Amy Ward

1 hour and 40 minutes

All together the exam has a maximum of 100 points.

There are 9 pages including this page.

This is a closed-book, closed-notes exam. You are allowed to use one double-sided crib sheet (8.5x11). Sharing a crib sheet with other students is not allowed.

You may use a simple calculator.

No cell phones. No laptops. No PDAs.

You may earn a partial credit for each question unless otherwise noted. Show your work completely. If you don't show your work, there will be no credits.

Do not be tempted to seek "inspiration" from a neighbor's exam. Poor scores can be overcome, but cheating will be dealt with harshly!

Please sign here to indicate that you have adhered to university policies regarding ethical behavior in preparing for and completing this exam.

"I hereby certify that I have adhered to the university policies regarding ethical behavior in preparing for and completing this exam."

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Section A: Multiple Choice [15 points; 3 points each; no partial credit]
Please pick the most appropriate answer to each of the following question.

1. You are forecasting the demand for a product, which is expected to have a trend. Which of the following is the most appropriate forecasting method to use for this product:

    a. Double Exponential Smoothing
    b. Single Exponential Smoothing with small α
    c. Single Exponential Smoothing with large α
    d. Moving Average with small n

2. Kristen is making regular and oatmeal cookies. She plans to make each cookie type in two versions: (i) with chocolate chips; and (ii) with chocolate chips and walnuts. The ingredients she has are 10 cups of flour, 20 ounces of chocolate chips and 20 ounces of walnuts. Kristen's objective is to maximize the number of cookies she can make. How many decision variables does Kristen have:

    a. 2
    b. 3
    c. 4
    d. 6

3. You are using the exponential smoothing method with $\alpha = 0.25$ to forecast demand for the iPad2. The available forecast for this week was 700,000 units, whereas the actual demand was 1 million units. Based on this data, the forecast be for the coming week's demand is:

    a. 625,000
    b. 1 million
    c. 775,000
    d. 931,250

4. Consider the Brewery Example in class. The sensitivity report created by Excel Solver is the following.

Adjustable Cells

Cell	Name	Final Value	Reduced Cost	Objective Coefficient	Allowable Increase	Allowable Decrease
D5	x1	40	0	6	0.5	1
D6	x2	10	0	5	1	0.5
D7	x3	30	0	3	3	1
D8	x4	0	-7	7	7	1E+30

Constraints

Cell	Name	Final Value	Shadow Price	Constraint R.H. Side	Allowable Increase	Allowable Decrease
C16	x1+x2+x3+4x4 <= 80 x4	80	1	80	20	5
C14	x1+x2+0x3+3x4 <= 50 x4	50	3	50	30	40
C15	2x1+x2+2x3+x4 <= 150 x4	150	1	150	10	40

Which of the following statements is false?

a. For the second constraint, it makes sense to pay $40 to increase the right hand side from 50 to 70

b. For the first constraint, the objective function value increases by 10, when we change the right hand side value from 80 to 90

c. For the first constraint, if we decrease the right hand side value by 15, we can use this Excel output to calculate the change in the objective function value

d. For the third constraint, if we decrease the right hand side value by 15, we can use this Excel output to calculate the change in the objective function value

5. Consider the following statements:

I. Exponential Smoothing is a better forecasting model than Moving Average

II. When there is a trend in data, Exponential Smoothing with small α gives a better forecast than Exponential Smoothing with large α

III. When there is a trend in data, Double Exponential smoothing with α = 0.2 gives similar forecast as Single Exponential Smoothing with α = 0.2

IV. Double Exponential Smoothing works very well for data with seasonality

Pick the most appropriate choice below

a. II is correct

b. II and III are correct

c. III is correct

d. II, III, IV are correct

e. None of the statements are correct