***MGMT 216 Eve Spring 2018 Students***

Exam #3 (Take Home) is to be done individually. The completed Exam #3 is to be submitted individually by e-mail to carpetfour@yahoo.com. These assignments have been detailed below.

The Take Home Exam #3 is due by 11:30 AM sharp on **Tuesday, March 20, 2018.** This Take Home exam is in place of (in lieu of class) on **Thursday, March 8, 2018.**

***Please observe all deadlines and directions on Exam #3.***

Thanks.

Professor Kenneth D. Lawrence

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**TAKE HOME EXAM #3 (Take Home) – Parts I and II**

**MGMT 216 Eve**

**Spring 2018**

**PROFESSOR KENNETH D. LAWRENCE**

**I. DIRECTIONS FOR THE TAKE HOME EXAM #3**

1. You must e-mail the answers to your take home Exam #3 to me at carpetfour@yahoo.com by **March 20, 2018, 11:30 AM.**

2. I will accept only one E-mail per **student** for the answers to Exam #3. (You cannot send me one set of answers on one E-mail and another set of answers on another E-mail.) The questions will be answered in order: Part (1) and Part (2). The file type must be a .doc file. No zip files and no MPJ files can be submitted.

3. The examination is open book and open notes.

4. You must include your name, class number, section number, and group name on the E-mail with your answers at the beginning of the E-mail.

5. The examination answers have to be turned in on time.

6. Those examinations turned in by E-mail after **March 20, 2018 at 11:30 AM** will lose one letter grade. Those sent after **11:30 AM on March 21, 2018**, will lose an additional letter grade. Those examination answers received by E-mail after **March 20, 2018, 11:30 AM,** are not considered acceptable progress in the course. However, there is a course requirement that Exam #3 must be completed before the course can be completed.

7. Examinations sent by any other means or to any other locations other than by E-mail to my Yahoo address will not be accepted for grading.

8. Submission of answers only in Minitab 17.2 files, without defining your work in obtaining the solution in full, is not acceptable. Detailed discussions must include the (a) business problem (b) data analysis techniques, (c) data, (d) analytical techniques, (e) computerized procedures, and (f) results and interpretation (per the course syllabus).

9. Merely providing screen shots from the Minitab 17.2 software is not acceptable. Rather they should be referenced in the results and interpretation. All computer output from Minitab 17.2 needs to be fully annotated.

***10. Grading of Exam #3 - Regression Forecasting Models & Fund Analysis***

**Part 1: Regression Forecasting Models** **Fund Analysis** 50%

Grade Components:

1.Model Formulation 15%

2.Minitab 17.2 Analysis and Validation 20%

3.Analysis of Integration of Fit & Forecasting 15%

Subtotal for Overall Regression & Forecasting 50%

**TAKE HOME EXAM #3, PART 1**

**I. DIRECTIONS FOR THE TAKE HOME EXAM #3, REGRESSION PROBLEMS, PART 1**

1. You must e-mail the completed exam to carpetfour@yahoo.com by **11:30 AM on Saturday, March 20, 2018.**

2. The exam is open book and open notes.

3. It is unacceptable to submit answers only in Minitab 17.2 files without defining your work in obtaining the solution in full. Detailed discussions must include the following:

a-Model Formulation

b-Minitab 17.2, Analysis and Validation

c-Analysis of Integration of Fit and Forecasting

**Grade Components:**

1. Model Formulation 15%
2. Minitab 17.2, Analysis and Validation 20%
3. Analysis of Integration of Fit and Forecasting 15%

**Subtotal for Part 1 50%**

**Exam #3 - Part 1 - Regression Forecast Modeling Analysis of Your** Regression Model Fit for Three Sets of Explanatory Variables

Using the first 39 months of data for years 2014, 2015, 2016, and 2017, forecast the price of your fund for months 40, 41, and 42 in year 2017. In all cases, the response variable is the price of your fund. You need to indicate the name of your fund in your submission.

In order to insure for validity of your Minitab regression computations, you must show a link between your Minitab data set, your Minitab regression drop downs, and your Minitab regression outputs. That is, for each regression run, the data file, the drop down, and the output all need to be given.

Regression Models - Explanatory Variable

**A. Set 1: Variables of explanation: time, relating it to the price of your fund.**

1.time (t) (1, 2, ..., 39) time (t-1, 2, ..., 39)

2.time (t2) (1, 2, ..., 39) time (t-1, 2, ..., 39)

3.time [(1/t)] (1, 2, ..., 39) time (t-1, 2, ..., 39)

**B. Set 2: Variables of explanation: finance, relating it to the price of your fund.**

1. Dow Jones Average (1, 2, ..., 39)

2. NASDQ Average (1, 2,.., 39)

3. S&P Average (1, 2,..., 39)

**C. Set 3: Economic Variables, relating to the price of your fund.**

1.gdp (1,2,…,39)

2.cpi (1,2,…, 39)

3.price per barrel of oil (1,2,…, 39)

Using Best Subsets Regression and regression program, relate the dependent variable price (of your fund) simultaneously to the 3 sets of explanatory variables:

Set 1 variable (time: 3)

Set 2 variable (finance: 3)

Set 3 variable (economic: 3)

Pick the best 3 models from the best subsets modeling procedure and the proposed models (best 3) into regression:

1. Determine which of the 3 models is best in terms of R2 and S values
2. Using the model structures used in part (1), display the forecast of price of your fund for months 40, 41, and 42, determine which model gives the best forecast and why.

**TAKE HOME EXAM #3, PART 2**

**I. DIRECTIONS FOR THE TAKE HOME EXAM #3, REGRESSION PROBLEMS, PART 2**

1. You must e-mail the completed exam to carpetfour@yahoo.com by 11:30 AM on **March 20, 2018.**

2. The exam is open book and open notes.

3. It is unacceptable to submit answers only in Minitab 17.2 files without defining your work in obtaining the solution in full. Detailed discussions must include the following:

a-Model Formulation

b-Minitab 17.2, Analysis and Validation

c-Analysis of Integration of Fit and Forecasting

**Grade Components:**

1. Model Formulation 15%
2. Minitab 17.2, Analysis and Validation 20%
3. Analysis of Integration of Fit and Forecasting 15%

**Subtotal for Part 2 50%**

**Regression Problem**

**25 sales territories’ observations for Butler Trucking**

**VARIABLE DEFINITIONS FOR THE BUTLER DATA**

|  |  |  |
| --- | --- | --- |
| **Variable** | **Variable Name** | **Definition** |
| Y | Sales | Total sales credited to the sales representative |
| X1 | Time | Length of time employed I months |
| X2 | Poten | Market potential; total industry sales in units for the sales territory |
| X3 | AdvExp | Advertising expenditure in the sales territory |
| X4 | Share | Market share; weighted average for the past four years |
| X5 | Change | Change in the market share over the previous four years |
| X6 | Accounts | Number of accounts assigned to the sales representative |
| X7 | Work | Workload; a weighted index based on annual purchases and concentrations of accounts |
| X8 | Rating | Sales representative overall rating on eight pe4rformance dimensions; an aggregate rating on a 1-7 scale |

Using Best Subsets Regression and the regression program, relate sales to othe 8 independent variables. Select the best 3 models from the best subsets modeling procedure and the proposed model (best 3) into regression and determine which of the 3 models is the best-of-the-best in terms of R2 and S values.

You must adjust the problem data by the scenario factors given to each student in order for the problem to be accepted for grading.



