**You can use Word, Excel, Power Point and SAS to answer the questions in this exam. There are a total of five (5) multi-part questions, with point values noted for each question.**

**Please show your calculations, or the details of your program(s) for each problem. The SAS programs should be commented so that each step is clearly explained.**

**Combine all your answers/files into a single zipped file and post the zipped file to “HW\_Midterm” in CANVAS.**

1. Using the SAS “income\_byzip\_njny\_metro” dataset, form seven clusters for Zip Codes based on the income distribution of the household. For each Zip Code, use the percentage of tax filings (number of filings /total filings) in each “Adjusted Gross Income” category (agi\_sub=1 to 6). (Use Kmeans).

Mike’s Falafel restaurant has been very successful at “MacDougal St, New York, NY 10012”. Mike is considering opening a new restaurant near Stevens Institute at “Washington Street, Hoboken, NJ 07030”. Based on your segmentation, do you think this is a good idea? Why?

(20 points)

1. Using the SAS “income\_byzip\_NJNY\_metro” dataset, form seven clusters for Zip Codes based on the income distribution of the household. For each Zip Code, use the percentage of tax filings (number of filings /total filings) in each “Adjusted Gross Income” category (agi\_sub=1 to 6). (Use Hierachical).

Mike falafel restaurant has been very successful at “MacDougal St, New York, NY 10012”. Mike is considering opening a new restaurant near Stevens at “Washington Street, Hoboken, NJ 07030”. Based on your segmentation, do you think this is a good idea? Why?

(20 points)

The following table shows the results of the conjoint analysis on three brands of tires.

Perform the following analysis for:

3) Tradeoff analysis between price and hazard insurance (20 points)

|  |  |  |  |
| --- | --- | --- | --- |
| **Brand** | **Price** | **Life** | **Hazard** |
| GoodMonth | 59.99 | 60,000 | No |
| GoodMonth | 59.99 | 60,000 | Yes |

Market share analysis for the following Market definition (20 points)

|  |  |  |  |
| --- | --- | --- | --- |
| **Brand** | **Price** | **Life** | **Hazard** |
| GoodMonth | 99.99 | 70,000 | Yes |
| Country | 69.99 | 60,000 | Yes |
| Micheal | 59.99 | 50,000 | No |

5) Relative Importance analysis (20 points)

|  |  |
| --- | --- |
| **Utilities Table** | |
| **Label** | **Utility** |
| **Intercept** | 9.50 |
| **Brand Country** | 0.17 |
| **Brand GoodMonth** | 1.00 |
| **Brand Micheal** | -1.17 |
| **Price $59.99** | 5.00 |
| **Price $79.99** | 0.67 |
| **Price $99.99** | -5.67 |
| **Life 50,000** | -2.83 |
| **Life 60,000** | 0.67 |
| **Life 70,000** | 2.17 |
| **Hazard No** | -0.94 |
| **Hazard Yes** | 0.94 |

Brand: Brand of Tire

Price: Price per Tire

Life: Expected number of miles

Hazard: Include hazard insurance yes or no:

Data income\_byzip\_njny\_metro