

K. J. SOMAIYA INSTITUTE OF MANAGEMENT STUDIES AND RESEARCH

Program: PG EXEC-Sem II (Batch 2017-18)

Subject: Problem definition and data analysis

(End Term Examination)

Date : 24/03/2018
hours

Maximum Marks: 50

Duration: 3

Date: 24/03/2018

Notes: 1. Answer all questions

2. **Specify assumption if any.**

3. Each question carries equal marks.

4. Report all the answers in the answer sheet.

Q.1. There are six general roast descriptions for the Coffees of the World. The longer a coffee is roasted, the darker and less acidic it becomes. Depending on the temperature, the type and number of pounds of coffee roasted, and the equipment used, roasting time is usually between 10 and 15 minutes. Fresh Brew coffee offers three types of coffee Blue-Label, Green-Label and Red-Label respectively based on roasting time. Is there significant difference in the cups ordered at 95% confidence level? Report sensitivity at 90 and 99 % confidence level.

Blue-Label	Green-Label	Red-Label
13	10	8
4	9	6
10	7	3
13	10	3
11	12	4
3	4	2

Q.2.

A. Spam e-mail has become a serious and costly nuisance. An office manager believes that the average amount of time spent by office workers reading and deleting spams exceeds 25 minutes per day. To test this belief, he takes a random sample of 18 workers and measures the amount of time each spends reading and deleting spams, the results are placed in Excel –SPAM. If the population of times is normal with the standard deviation of 12 minutes, can the manager infer that he is correct?

B. Estimate the confidence interval level at 88%, 90% and 99% for the above problem.

Q.3. Where should La Quinta locate a new motel? Refer Excel- La quinta

Several possible predictors of profitability were identified, and data (La Quinta) were collected. It is believed that operating margin (y) is dependent upon these factors:

x_1 = Total motel and hotel rooms within 3 mile radius

x_2 = Number of miles to closest competition

x_3 = Volume of office space in surrounding community

x_4 = College and university student numbers in community

x_5 = Median household income in community

x_6 = Distance (in miles) to the downtown core.

Run Multiple regression,

Predict the operating margin if a La Quinta Inn is built at a location where,

1. There are 3815 rooms within 3 miles of the site.
2. The closest other hotel or motel is .9 miles away.
3. The amount of office space is 476,000 square feet.
4. There is one college and one university nearby with a total enrollment of 24,500 students.
5. Census data indicates the median household income in the area (rounded to the nearest thousand) is \$35,000, and,
6. The distance to the downtown center is 11.2 miles

Q.4. A research was conducted to for a makeover of Hardee's Restaurant. The main room had bright lights and loud music. In a separate room, the renovation brought in plants, paintings, indirect lighting and white tablecloths and candles on the tables. The amount of time a random sample of patrons spent in the restaurants for each room was recorded. Is there enough evidence to infer that there is a difference in the time spent in these two setups? Refer Excel- time

Q.5 In the above study Customers were also asked how likely they would return to the restaurants (2=likely, 1= unlikely). Is there significant difference in the likeliness of the return? Refer Excel – Likeliness.

ALL THE BEST