

K. J. SOMAIYA INSTITUTE OF MANAGEMENT STUDIES AND RESEARCH,
Vidyavihar, Mumbai- 400077

Program: PGDM Executive (Batch 2018-19), Trim.-I
Subject: Quantitative Techniques
(End Term Examination)

Maximum Marks: 50

Duration: 3 hours

Date: 29th Nov. 2018

Instructions

1. Question 1 & 2 are compulsory.
2. Prepare a word document.

Case: Advisement Industry -

40 Marks

After analyzing whether the number of ads is related to the number of customers, the manager decide to determine whether advertising make any difference. As a result, he reorganize the experiments. Each week he advertise several times per week, but in only one of advertising media. He again recorded the weekly number of customers, the number of ads, and the media of that week's advertisement (1 = newspaper, 2 = radio and 3 = television).

Managerial Report –

1. What proportion of the media of that week advertisement through newspaper, radio and television? If you were randomly select 40 advertisement, what is the probability that less than 20 use newspaper, radio and television as the media for advertisement? And, if you were randomly select 20 customers, what is the probability that more than 17 use newspaper, radio and television as the media for advertisement?
2. Estimate the probability that the number of ads is more than 6? What is the probability that the number of ads are less than 10? And, calculate the probability number of ads is between 2 and 7?

3. Estimate the probability that the number of customer is more than 116? What is the probability that the numbers of customer are less than 215? And, calculate the probability number of customer is between 182 and 179?
4. Determine the sample proportion of the media of that week advertisement through newspaper, radio and television Construct a 95% and 99% confidence interval to estimate the population proportion of customers who use newspaper, radio and televisions as the media for the advertisement?
5. Estimate the population average number of customers and number of ads at 95% and 99% confidence interval?
6. Identify the relationship between age and losses made by the customers? Develop the regression model between losses and age of the customers?

Question 2

10 Marks

An investor has \$10, 00,000 to invest in the stock market. She is interested in developing a stock portfolio made up of Apollo Tyres, Ashok Leyland, Bharti Airtel, and Avenue Supermarket. However, she does not know how much to invest in each one. She wants to maximize her return, but she would also like to minimize the risk. She has computed monthly returns for all four stocks during a 60-month period (Jan. 2001 to Dec. 2006). After some consideration, she narrowed her choices down to the following three. What should she do?

- a. Equal amount in each stock.
- b. Apollo Tyres: \$2,00,000, Ashok Leyland : \$3,00,000, Bharti Airtel: 4,00,000, Avenue Supermarket: 1,00,000.

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