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

Program: *PGDM - HCM (Batch 2018-19), Sem.-I*
Subject: Statistical Analysis
(End Term Examination)

Maximum Marks: 50
Duration: 3 hours

Date: 20ᵗʰ Sep. 2018

Instructions :
1. Question 1 & 2 is compulsory.

2. Prepare a word document.

QUESTION 1 –Manufacturing firm–

A manufacturing firm of FMCG products is in business for the past 25 years. The firm has introduced different type of technologies in different phases. At present the production is carried out using three technologies, labor intensive, a mix of labor and technology, and advance technology. This is apparently affected the production in terms of total output. The firm management now wants to evaluate the effectiveness of the technologies in the indices of output and employees satisfaction. The industry output is also given in the data.

Managerial Report:

1. What proportion of the investors considers different technology types? What is the probability that fewer than 17 people consider labor intensive (1), a mix of labor and technology (2) and advance technology (3)? What are the probability 19 people consider more than labor intensive (1), a mix of labor and technology (2) and advance technology (3)? What are the probability that exactly 12 people consider labor intensive (1), a mix of labor and technology (2) and advance technology (3)?

2. Estimate the probability that industry output will be more than 120? What is the probability that the industry output will be less than 25? What is probability that the industry output will be 35?

3. Estimate the probability the industry output will be more than 137 lakhs? What is

the probability that the industry output less than 125 lakhs? What is probability that the industry output will be in between 125 lakhs to 142 lakhs?

4. Determine the sample proportion of the people who use the technology i.e. Labor intensive, a mix of labor and technology, and advance technology? Construct a 95% confidence interval to estimate the population proportion of people who use different technologies?

5. Estimate at 95%, 99% and 90% confidence interval that the industry output of the manufacturing firm?

Question 2   10 Marks

An investor has $500,000 to invest in the Mutual funds. She is interested in developing a stock portfolio made up of CIPLA, PIRAMAL, NOVARTIS and NOVA. 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 mutual funds during a 60-month period (Jan. 2010 to Dec. 2014). After some consideration, she narrowed her choices down to the following three. What should she do?
   a. Equal amount in each stock.
   b. CIPLA: 30%, PIRAMAL: 30%, NOVARTIS: 20%, NOVA: 20%.
   c. CIPLA : 30%, PIRAMAL : 20%, NOVARTIS : 10%, NOVA : 40%.

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