

Semester: June – Sep 24		
Maximum Marks: 50 Examination: ETE Exam Date: 4/11/2024 Duration: 2 Hours		
Programme code: 01 Programme: MBA	Class: FY	Semester/Trimester: I
College: K. J. Somaiya Institute of Management	Name of the department/Section/Center: Business Analytics	
Course Code: 317P01C101	Name of the Course: Business Statistics	
Instructions: 1. All questions are compulsory. There is an internal choice in Question 3. 2. Make suitable assumptions if required and state them. 3. Write all relevant answers and interpretations in your Excel sheet, with sufficient details in an easily readable manner to enable a fast evaluation of your answers. 4. Keep saving the file every ten minutes or so. 5. Make only 1 Excel file with different worksheets pertaining to each question. 6. Name the file with your division no., name and roll number.		

Question No.		Max. Marks
1	<p>A nursery is specialized in custom-designed landscaping for residential areas. The estimated labor cost associated with a particular landscaping proposal is based on the number of planting of trees, shrubs, and so on to be used for the project. For cost-estimating purposes, managers use 2 hours of labor time for the planting of a medium sized tree. Actual time from a sample of 10 plantings during the past month was collected. Refer <i>Ques 1 Worksheet in Excel File BS Data Set 4</i> for actual time. With 1% level of significance, test to see whether the mean tree planting time differs from 2 hours.</p> <p>a. State the null and alternative hypotheses b. Calculate the test statistic c. State the decision criteria for the given hypotheses d. State the conclusion in the context of the problem</p>	20
2	<p>Costs for a 30-Second Spot on Cable Television</p> <p>The approximate costs (in Rs.) for a 30-second spot for various cable networks in a random selection of 17 cities are shown below. Refer to <i>Ques 2 Worksheet in Excel File BS Data Set 4</i>.</p> <p style="text-align: center;">14 55 165 9 15 66 23 30 150 22 12 13 54 73 55 41 78</p> <p>a. Estimate and interpret the population mean cost for a 30-second advertisement on a cable network with 90%, 98% and 99% confidence. b. Compute the interval width. c. What difference would it make to the interval width if the population standard deviation is given as Rs. 50, the confidence level is 99%, and the standard deviation remains the same? Which distribution did you use in this case, and why?</p>	20
3	<p>In October 2012, Apple introduced a much smaller variant of the Apple iPad, known as the iPad Mini. Weighing less than 11 ounces, it was about 50% lighter than the standard iPad.</p> <p>Assume that battery life of the iPad Mini is normally distributed ,Battery tests for the iPad Mini showed a mean life of 10.25 hours with standard deviation of 1.5 hrs(The Wall Street Journal, October 31, 2012).</p> <p>a. What is the probability that the battery life for an iPad Mini will be 10 hours or less? b. What is the probability that the battery life for an iPad Mini will be at least 11 hours? c. What is the probability that the battery life for an iPad Mini will be between 9.5 and 11.5 hours?</p> <p style="text-align: center;">OR</p> <p>The image of the Japanese manager is that of a workaholic with little or no leisure time. From a previous survey, the average amount of time spent by a Japanese Manager in leisure activities is normally distributed with mean 22 and standard deviation of 6. In a recent survey,</p>	10

a random sample of 250 Japanese middle managers was asked how many hours per week they spent in leisure activities.

a. What is the probability that the mean time spent by a Japanese manager in leisure activities is 18 hrs or more.

b. If the researcher wants to ensure that the margin of error in estimating the mean leisure time is no more than 1 hour, what would be the minimum required sample size to achieve this level of precision at a 98% confidence level?