SOMAIYA VIDYAVIHAR UNIVERSITY

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	Maxwell's Hot Chocolate is concerned about the effect of the recent year -long coffee advertising campaign on hot chocolate sales. The average weekly hot chocolate sales two years ago was 984.7 pounds and the standard deviation was 72.6 pounds. A Random sample of 30 week Chocolate sales is selected from the past year. *Refer to* ***Ques 1 Worksheet*** *in Excel File BS Data Set 2.* a. State appropriate hypothesis for testing whether hot chocolate sales have decreased. b. At the 2% significance level, test these hypotheses. c. At the 5% Significance level, test these hypotheses. d. Explain why the conclusion differs at the 2% and 5% significance levels	20
2	**Digital Camera Prices** The prices (in Rs.) for a particular digital camera model with 6.0 megapixels and an optical 3X zoom lens are shown below for 10 online retailers. *Refer to* ***Ques 2 Worksheet*** *in Excel File BS Data Set 2.* 225 240 215 206 211 210 193 250 225 202 a. Estimate and interpret the population mean price for this model with 95%, 98%, and 99% confidence. b. Compute the interval width. c. What difference would it make to the interval width if the sample size increases to 220, the confidence level is 99%, and the standard deviation remains the same? Explain your findings.	20
3	As per C+R Research**,** on an average, people can spend around $200 to $500 per month without fully realising it ;which is called as "Invisible spending ". According to a 2019 study, a person spends an average of $199 per month on subscriptions alone, with a standard deviation of $20, often without tracking them. **These amounts can vary significantly by country, income level, and personal habits. Assume that the amount of cash spent without being aware of where it goes is normally distributed answer the following questions 1.What is the probability that a randomly selected person will spend more than $125?	10

	2. What is the probability that a randomly selected person will spend between $100 and $220? 3. What is the probability that the person spends less than $199? 3. Between what two values will the middle 95% of the cash spent amount fall? **OR** a. Differentiate between standard error and margin of error. b. You want to conduct a survey to determine the average age of General Practitioners in the city of Delhi/NCR. You want to calculate the 95% confidence interval for the average age of the General Practitioners. Your acceptable margin of random error is plus or minus 3 years. From previous work you estimate the standard deviation of the General Practitioners ages is 12 years. Calculate the sample size.	