SOMAIYA VIDYAVIHAR UNIVERSITY

Semester: **Maximum Marks: 50** **Examination: ETE Exam** **Date:** **Duration: 2.5 Hrs**		
Programme code: 18 **Programme: MBA for Working Executives Batch 03 (MBAWE03)**	**Class:** FY	**Semester/Trimester: I**
College: K. J. Somaiya Institute of Management	**Name of the department/Section/Center:** Business Analytics	
Course Code: 117P18C108	**Name of the Course: Business Statistics**	

Instructions:

- **There are 4 questions in all. All questions are compulsory.**
- **Q1 – Q3 carry 10 mark each. Q4 carries 20 marks.**
- **All subparts to a question must be answered.**
- **Make suitable assumptions if required and state them.**
- **Make only 1 Excel file with different worksheets pertaining to each question.**
- **All attempted questions must be solved entirely using MS Excel. All relevant analyses and interpretations should also be stated in the Excel worksheet itself.**

Question No.		Max. Marks
Q1	A sample of 33 airline passengers found that the average check in time is 2.167. Based on long term data, the population standard deviation is known to be 0.48. a. Find a 95% confidence interval for the mean check in time. b. Further, construct a 90% and 99% confidence interval estimate of the population mean check in time. c. Compare all the 3 results.	10
Q2	A construction company has taken up a project to build a high-rise office complex. The time required to complete a construction project is normally distributed with a mean of 80 weeks and a standard deviation of 10 weeks. A construction company must pay a penalty if the project is not finished by the due date in the contract. a. What is the probability that the construction company will complete the project in 75 weeks? b. What is the probability that the construction company will complete the project in 80 to 85 weeks? c. A construction company must pay a penalty if the project is not finished by the due date in the contract. If the due date on the contract is 90 weeks, what is the probability that they will have to pay a penalty? d. If a construction company bidding on this contract wishes to be 90% sure of finishing by the due date, what due date (no. of weeks) should be negotiated?	10

Q3	A. Suppose you are interested in estimating the average cost of staying for one night in a double room in a three-star hotel in France (outside Paris). Using €30.00 as the planning value for the population standard deviation, what sample size is recommended for a 90% confidence interval estimate of the population mean cost? Allowable margin of error is €3 B. Susan Williams is the production manager of Medical Suppliers, Inc. Medical Suppliers, Inc., is a producer of bandages and arm slings. The average annual demand for No-Stick bandages has been about 87,000 packages. Susan has reason to believe that the distribution of No-Stick follows a normal curve, with a standard deviation of 4,000 packages. i. What is the probability that sales will be less than 81,000 packages for any given year? ii. If we were to record the sales for 10 years, what is the probability that the average sales over the next 10 years would be less than 85,000?	10
Q4	The Excel file **Credit Risk Data** provides information about bank customers who had applied for loans in bank XYZ. The data include the purpose of the loan, checking and savings account balances, number of months as a customer of the bank, months employed, gender, marital status, age, housing status and number of years at current residence, job type, and credit-risk classification by the bank. a. Compare the variability in the savings of a skilled versus unskilled customer. (Use variable: "**Savings**"). Which type of customer is more consistent in their savings? b. Compute the descriptive statistics for the number of months a person has been the customer of the given bank. (Use variable: **"Months Customer")** c. For the above also compute the first, third, inter quartile range and coefficient of variation. d. Use, the above measures to comment on the following: i. How would you describe the customer relationship with the bank by looking at the **"Months Customer"** data? Also comment on the variability. ii. Describe the shape of the variable and interpret the same.	20

********** All the Best **********