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| **Semester: Aug 2024**  **Maximum Marks: 50 Examination: End Sem ATKT Exam Date: 10/8/2024 Duration: 2.5hrs** | | |
| **Programme code:18.**  **Programme: MBA for Working Executive** | **Class:** FY | **Semester/Trimester: I**  **Batch 1 (2023-24)** |
| **College:**  **K. J. Somaiya Institute of Management** | **Name of the department/Section/Center:**  Centre for Executive Education | |
| **Course Code:** | **Name of the Course:**  Business Statistics | |
| **Instructions:**   1. **All questions are compulsory.** 2. **Make suitable assumptions if required and state them.** 3. **Use Excel as required and save the file every ten minutes.** 4. **Write all relevant answers and interpretations in Excel with sufficient details to enable a fast evaluation of your answers.** 5. **Create 1 Excel file with different worksheets about each question.** | | |

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| **Question No.** |  | **Max.**  **Marks** |
| 1 | 1. Because of the relatively high interest rates, most consumers promptly attempt to pay off their credit card bills. However, this is only sometimes possible. An analysis of the amount of interest paid monthly by a bank’s Visa cardholders reveals that the amount is normally distributed with a mean of Rs. 30 and a standard deviation of Rs. 8. 2. What proportion of the bank’s Visa cardholders pay more than Rs. 40 in interest? 3. What percentage of the bank’s Visa cardholders pay interest between Rs. 10 and Rs. 60? 4. What proportion of the bank’s Visa cardholders pay less than Rs. 18 in interest?   B. The manufacturer of cans of cardamom that are supposed to have a net weight of 8 ounces tells you that the net weight is actually a normal random variable with a mean of 8.05 ounces and a standard deviation of 0.12 ounces. Suppose that you draw a random sample of 42 cans.   1. Find the probability that the mean weight of the sample is less than 8 ounces. 2. What does the CLT say about the sampling distribution of the mean if a sample size of 20 is drawn from the population? | 5 + 5 |
| 2 | Write a short note on any two:   1. Standard deviation and coefficient of variation 2. Measures of central tendency (mean, median, and mode) 3. Central Limit Theorem (CLT) | 5 + 5 |
| 3 | In a car shop floor safety test conducted by a safety research centre, the average tyre pressure in a sample of 102 tyres was found to be 24 pounds per square inch, and the standard deviation was 1.22 pounds per square inch.   1. Construct a 95% and 99% confidence interval for the population mean and interpret the results. 2. What impact does the sample size have on the interval width? | 8 + 2 |
| 4 | Sales volume and price of a slice of plain pizza ($) in Baltimore, Dallas, Chicago, and Denver for 156 weeks were recorded. Use the output given below to answer the following questions:       1. Comment on the shape of pizza prices in Chicago and Denver. (6 Marks) 2. Compare the variability of Baltimore and Chicago prices. Which one is more consistent? Which measure have you used and why? (6 Marks) 3. What are the limits between which the middle 50% of the prices were recorded for Baltimore and Dallas? Also, calculate and interpret the interquartile range. (6 Marks) 4. What is the difference between Kurtosis and Skewness? (2 Marks) | 20 |