SRM INSTITUTE OF SCIENCE & TECHNOLOGY	**SRM Institute of Science and Technology** **Department of Mathematics** **18MAB204T-Probability and Queueing Theory** **Module – II** **Tutorial Sheet - 8**

S.No.	Questions
	Part – A
1	A random sample of 2000 measurements from a large population gave a mean value of 50 and standard deviation of 9. Determine the 95% confidence limits for the mean of the population.
2	A sample of 64 farm laborers engaged in paddy harvesting operations shows an average monthly rate of rupees 200/- with a standard deviation of rupees 9. Using 0.05 level of significance, verify if the sample result indicates that their current average monthly wage rate is greater than rupees 198.
3	A Business firm is engaged in the manufacture of ball bearing. The production manager intends to estimate the mean diameter of all the ball bearings manufactured during a particular week. The measurements of diameters of a random sample of 400 ball bearings produced a mean of 0.950 inches and standard deviation of 0.049 inches. Find the 95% confidence interval for the mean diameter of week's production?
4	The mean weight obtained from a random sample of size 100 is 64 gms. The S.D of the weight distribution of the population is 3 gms. Test the statement that the mean weight of the population is 67 gms at 5% level of significance. Also set up 99% confidence limits of the mean weight of the population.
	Part – B
5	In a survey of buying habits, 400 women shoppers are chosen at random in super market A located in a certain section of the city. Their average weekly food expenditure is 250 with a standard deviation of 40. For 400 women shoppers chosen at random in super market B in another section of the city, the average weekly expenditure is 220 with a standard deviation of 55. Check, at a 1% level of significance, if the average amount each group of shoppers spends on food each week is the same.
6	The average hourly wage of sample of 150 workers in a plant A was 2.56 with a standard deviation of 1.08. The average wage of a sample of 200 workers in plant B was 2.58 with a standard deviation of 1.28. Can an applicant safely assume that the hourly wages paid by plant B are higher than those paid by plant A?
7	An examination was given to 50 students of a college A and to 60 students of college B. For A, the mean grade was 75 with S.D of 9 and for B, the mean value was 79 with S.D 7. Is there any significant difference between the performance of the students of college A and those of college B? Test at 1% and 5% LOS and justify your answer.
8	A random sample of size 16 has mean equal to 53. The sum of the squares of the deviation from the mean is 135. Can this sample be regarded as taken from the population having 56 as mean? $Hint: \frac{\Sigma(x-\bar{x})^2}{n} = s^2. Given\ Nr. = 135$