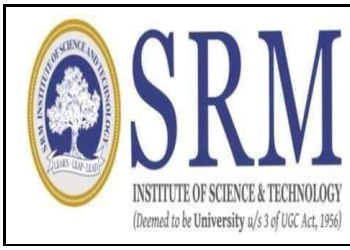
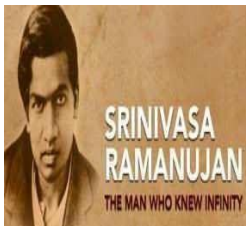



**SRM INSTITUTE OF SCIENCE AND TECHNOLOGY**
**DEPARTMENT OF MATHEMATICS**

**21MAB301T - PROBABILITY AND STATISTICS**




# UNIT 2- TUTORIAL SHEET 3

| s.no | Problems | Answers |
|---|---|---|
| 1 | If X is normal distribution with mean 16 and standard deviation 3. Find (i) P(X≥ 19) $(ii)\ P(10 < X < 25)$ | (i) 0.1587<br>(ii) 0.9759 |
| 2 | Let X denote the number of grams of hydrocarbons emitted by an automobile per mile. Assuming X is normal with$\mu = 1, \sigma = 0.25$. Find the probability that a randomly selected automobile will emit between 0.9 and 1.54 gram of hydrocarbon per mile. | 0.64 |
| 3 | If a random variable X follows normal distribution with mean 28 and variance 625 then find $P(32 < X < 68)$ | 0.3816 |
| 4 | The life of a certain kind of electronic device has a mean of 300 hours and standard deviation of 25 hours. Assuming that the life hours of the devices follow normal distribution. Find the probability that any one of these devices will have a life time more than 350 hours | 0.0228 |
| 5 | If X is normally distributed and the mean of X is 12 and S.D is 4. Find the probability $P(X \geq 20)$ | 0.0228 |
| 6 | If X is normal random variable with mean $\mu = 3, \sigma^2 = 16$ find $p(X < 1)$ | 0.3085 |
| 7 | The weights in pounds of parcels arriving at a package delivery company's warehouse can be modelled by an N(5,16) normal variable X. What is the probability that a randomly selected parcel weighs between 1 and 10 pounds? | 0.7357 |
| 8 | If x is uniformly distributed over (0,10) find $P(X < 4)$ | 2/5 |
| 9 | Let X be a uniformly distributed random variable in the interval (-a, a) then determine a | 2 |
| 10 | Let X be a uniformly distributed random variable ova (0,1) determine the moment generating function | $\frac{1}{t}(e^t - 1)$ |