Indian Institute of Information Technology, Vadodara (IIITV)
IIITV- International Campus Diu

Probability and Statistics (MA201)

TUTORIAL 4

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1. The Plane has six engines. each engine can fail with the probability of p. The plane hazard alert system need following probability.
   (a) All engines working.
   (b) All engines failed.
   (c) More than two are active.

2. A binary message is transmitted through a channel that gets errors with probability $p = 0.01$.
   (a) What is the PMF of N, the non-error message till error occur?
   (b) What is $E[N]$?
   (c) Suppose we want to be 99% sure that at least 1000 characters are received correctly before a bad one occurs.What is the appropriate value of p?

3. At Restaurant, 1 cook can prepare 1 order in 30 minutes. Every 30 minutes average 5 orders are placed. What is the number of cook required so the probability that more than four orders are waiting is less than 15%. What is the probability that there are no orders waiting?

4. A random variable X uniform random variable that takes values between -3 to 4. Find the mean and variance of $Y = 2X^2 + 3$.

5. At the ticket window, 30 passengers come per hour. What is the probability that the ticket collector has to wait more than 3 minutes to issue ticket to the next passenger?

6. The time it takes a printer to print a job is an Exponential random variable with the expectation of 12 seconds. You send a job to the printer at $10:00$ am, and it appears to be third in line. What is the probability that your job will be ready before $10:01$?

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Best wishes