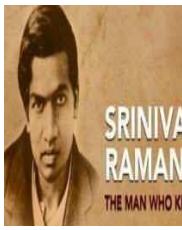

UNIT 2 – TUTORIAL SHEET 1

s.no	Problems	Answers
1	For a Binomial distribution of mean 4 and variance 2 , find the probability of getting (1) at least 2 successes (2) at most 2 successes	(1) $\frac{247}{256}$ (2) $\frac{37}{256}$
2	A Binomial variable X satisfies the relation $9P(X=4)=P(X=2)$ when n=6. Find the parameter p of the Binomial distribution	$p=\frac{1}{4}$
3	Obtain the MGF of the binomial distribution with n=7 and p=0.6.	$(0.4+0.06e^{t})^{7}$
4	If 20% of the bolts produced by a machine are defective , determine the probability that out of 4 bolts chosen at random (1) 1 (2) 0 (3) at most 2 bolts are defective	(1) 0.4096 (2) 0.4096 (3) 0.9728
5	Let X be a random variable following Poisson distribution such that P(X=2)=9 P(X=4)+90 P(X=6) find the mean and standard deviation of X	Mean =1 and variance=1
6	6 coins are tossed 6400 times. Using Poisson distribution what is the approximate probability of getting 6 heads 10 times?	1.025×10^{-30}
7	The average number of traffic accidents on a certain section of a highway is two per week. Assume that the number of accidents follow a Poisson distribution. find the probability of (i) no accidents in a week (ii) at most two accidents in a 2 week period	(i) 0.1353 (ii) 0.4335
8	If a Poisson variate X is such that P(X=1)=2P(X=2) find P(X=0) and Var X	(i) 0.3679 (ii) 1
9	If X is a Poisson variate with $\lambda=1.5$ find the probability that (i) X=3, (ii) $X\leq3$	(i) 0.125 (ii) 0.934
10	From the past experience in a certain industrial plant there are an average of 4 accidents. Find the probability that in a given year there will be less than 4 accidents	0.4335