ADAMAS UNIVERSITY PURSUE EXCELLENCE	**ADAMAS UNIVERSITY** **END-SEMESTER EXAMINATION : MAY 2021** **(Academic Session: 2020 – 21)**		
Name of the Program:	**B.Tech. in ECE**	**Semester:**	**IV**
Paper Title :	**Probability Statistics and Numerical Methods**	**Paper Code:**	**SMA42111**
Maximum Marks :	**40**	**Time duration:**	**3 hrs.**
Total No of questions:	**8**	**Total No of Pages:**	**1**
(Any other information for the student may be mentioned here)			

Instructions:

Attempt any three questions from Section A (each carrying 4 marks); any Two Questions from Section B (each carrying 10 marks). Section C is Compulsory (carrying 8 marks).

	Section A (Attempt any Three) $3 \times 4 = 12$	
1	**The odds that person X speaks truth are 3: 2 and person Y speaks truth are 5: 3. in what percentage of cases are they likely to contradict each other on an identical point?**	**(4)**
2	**Five balls are drawn from an urn containing 4 white and 6 black balls. Find the probability distribution of the number of white balls drawn without replacement.**	**(4)**
3	**Show that correlation coefficient lies between 1 and -1.**	**(4)**
4	**Find the probability distribution of the number of boys in a family with 3 children, assuming equal probabilities for boys and girls. Graph the distribution. Also find the distribution function $F(x)$ for the random variable X.**	**(4)**
	Section A (Attempt any Two) $2 \times 10 = 20$	
5	**In a certain factory producing razor blades, there is a small chance that one out of 500 blades to be defective. The blades are in a packets of 10. Calculate the approximate number of packets containing (i) no defective (ii) one defective (iii) two defective blades respectively in one consignment of 10,000 packets. [Given, $e^{-0.02} = 0.9802$]**	**(10)**
6	**If a random variable X follows normal distribution such that $P(9.6 \leq X \leq 13.8) = 0.7008$ and $P(X \geq 9.6) = 0.8159$, where** $\int_0^{0.9} \frac{1}{\sqrt{2\pi}} e^{-\frac{x^2}{2}} dx = 0.3159$ *and* $\int_0^{1.2} \frac{1}{\sqrt{2\pi}} e^{-\frac{x^2}{2}} dx = 0.3849$	**(10)**
7	**Solve the following system of linear equations by Gauss elimination method.** $X_1+X_2-X_3= 2$; $2X_1+3X_2+5X_3= -3$; $3X_1+2X_2-3X_3= 6$	**(10)**
	SECTION C is Compulsory $1 \times 8 = 8$	
8	**Find cube root of 10 using Newton Raphson method correct upto two decimal places.**	**(8)**