Thapar Institute of Engineering & Technology, Patiala
(Deemed to be University)

Department of Electronics & Communication Engineering

Tutorial-1 PIT (UEC-408)

Que-1 Bhawna has 4 different toys and Geeta has 7 different toys. Find the number of ways in which they can exchange their toys so that each keep her initial number of toys?

Que-2 How many different words can be formed by using all letters of the word "PATIALA"? how many words are there in which vowels occupy the even position?

Que-3 A Probability and Information Theory class for engineers consists of 25 industrial, 10 mechanical, 10 electrical, and 8 civil engineering students. If a person is randomly selected by the instructor to answer a question, find the probability that the student chosen is a) an industrial engineering major and b) a civil engineering or an electrical engineering major.

Que-4 What is the probability of getting a total of 7 or 11 when a pair of fair dice is tossed?

Que-5 A and B toss a fair coin 50 times each simultaneously. The probability that both of them will not get tails at the same toss?

Que-6 A random experiment has sample space $S=\{a,b,c\}$. Suppose that $P(\{a,c\})=0.75$ and $P(\{\mathrm{b},c\})=0.6$. Find the probability of the elementary events.

Que-7 Three numbers are chosen at random without replacement from $\{1,2,.....,15\}$. What is the probability that minimum of the chosen numbers is 5 or their maximum is 10?

Que-8 Let A, B and C be three events in S. If $P(A)=P(B)=\frac{1}{4}$, $P(C)=\frac{1}{3}$, $P(A\cap B)=\frac{1}{8}$, $P(A\cap C)=\frac{1}{6}$, and $P(B\cap C)=0$. Find $P(A\cup B\cup C)$.

Que-9 If p and q are chosen randomly from the set $\{1,2,3,4,5,6,7,8,9,10\}$, with replacement. Determine the probability that the roots of the equation $x^2+px+q=0$ are real.

Que-10 The digits $1,2,3,4,5,6,7,8,$ and 9 are written in random order to form a nine digit number. Find the probability that this number is divisible by 4.