



PARUL UNIVERSITY
FACULTY OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF APPLIED SCIENCE AND HUMANITIES
(4th SEMESTER) B.TECH PROGRAMME
PROBABILITY, STATISTICS AND NUMERICAL METHODS
(203191251)
ACADEMIC YEAR 2021-2022

Tutorial-3 Probability

1	From a bag containing 10 black and 20 white balls, a ball is drawn at random. What is the probability that it is i. black ii. White?															
2	An urn contains 3 red and 7 white balls. A ball is drawn at random from the urn and in its place a ball of other colour is put. If now one ball is drawn from the urn, find the probability that it is red.															
3	Consider an experiment of selecting a playing card from a deck of 52 playing cards. a. List the sample points in the event an ace is selected and also find the probability of this event. b. List the sample points in the event a face card is selected and also find the probability of this event. c. What is the probability of an event a selected card is of red color? List the sample points in the event a club is selected. Also find the probability of this event.															
4	The following table shows the probabilities of blood types in the general population <table><tr><td></td><td>A</td><td>B</td><td>AB</td><td>O</td></tr><tr><td>Rh +</td><td>34%</td><td>9%</td><td>4%</td><td>38%</td></tr><tr><td>Rh -</td><td>6%</td><td>2%</td><td>1%</td><td>6%</td></tr></table> a. What is the probability a person will have type O blood? b. What is the probability a married couple will both be Rh - ? c. What is the probability a person will have type B blood given he or she is Rh+?		A	B	AB	O	Rh +	34%	9%	4%	38%	Rh -	6%	2%	1%	6%
	A	B	AB	O												
Rh +	34%	9%	4%	38%												
Rh -	6%	2%	1%	6%												
5	A and B are two independent events and $P(A) = \frac{1}{2}, P(B) = \frac{1}{5}$ find $P(A \cup B)$.															
6	Two unbiased dice are thrown. Find the probability that (i) both dice show the same digit. (ii) the sum of the scores is a prime number															
7	Two students X and Y work independently on a problem. The probability that X will solve it is $\frac{3}{4}$ and the probability that Y will solve it is $\frac{2}{3}$. What is the probability that the problem will be solved?															
8	From well shuffled pack of 52 playing cards, one card is drawn. What is the probability that (i) It is either red card or black card (ii) it is either a jack or an ace card (iii) it is either red card or spade card															
9	A factory production line is manufacturing bolts using 3 machines A,B and C. Of the total output, machines A is responsible for 25% , machines B is responsible for 35% and machines C is responsible for the rest. It is known from the previous experience with the machines that 5% of the output from machine A is defective , 4% from machine B and 2% from machine C. Bolt is chosen at random from the production line and found to be defective. What is the probability that it came from (i) machine A, (ii) machine B															

	and(iii)machine C.
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