SRM Institute of Science and Technology

College of Engineering and Technology

Kattankulathur-603 203

Department of Mathematics

21MAB301T-Probability and Statistics

Sl.No.	Tutorial Sheet-1	Answers
1.	Four cards are drawn at random from a well shuffled pack of 52 cards. Find the probability that(i) they all are diamonds (ii) all four cards of the same suit?	0.0026, 0.0106
2.	An integer is chosen from 1 to 15. What is the probability it is an odd prime?	1/3
3.	A person A is known to hit the target in 3 out of 5 shots. B is known to hit the target in 1 out of 4 shots. Find the probability of the target being hit when both try?	0.7
4.	If we draw a card from a well shuffled pack of 52 cards, Find the probability that the card is (i) either an ace or a king (ii) either a diamond or a queen.	2/13, 4/13
5.	An article consists of two parts. The manufacturing process of each part is such that the probability of defect first part is 0.06 and that in the second part is 0.09. What is the probability that the assembled product will not have any defect?	0.8554
6	Identifying spam message is to create a list of words that are more likely to appear in spam than in normal messages. For example, words like buy or the brand name of an enhancement drug are more likely to occur in spam messages than in normal messages. Suppose a specified list of words is available and that your data base of 5000 messages contains 1700 that are spam. Among the spam messages, 1343 contain words in the list. Of the 3300 normal messages, only 297 contain words in the list. Obtain the probability that a message is spam given that the message contains words in the list.	0.819
7	A chain of stores sells three different brands of TVs. Of its TV sales, 50% are brand-1 (the least expensive), 30% are brand-2, and 20% are brand-3. Each manufacturer offers a 1-year warranty on parts and labor. It is known that 25% of brand-1's TVs require warranty repair work, whereas the corresponding percentages for brands 2 and 3 are 20% and 10%, respectively. (i) What is the probability that a randomly selected purchaser has a TV that will need repair while under warranty? (ii) If a customer returns to the store with a TV that needs warranty repair work, what is the probability that it is a a brand-3 TV?	0.205, 0.10

Sl.No.	Tutorial Sheet-1	Answers
8	Two boxes contain colored balls as given below: 4 red, 11 green and 10 blue balls; 21 red, 16 green and 12 blue balls. One ball is transferred at random from box I to box II and then one ball is drawn at random from box II. If this turns out to be red, what the probability that a blue ball was transferred?	0.397
9	Two persons were competing for the post of the Manager. The probabilities that the 1st and 2nd will win are 0.6 and o.4 respectively. If the 1st person wins, the probability of introducing the common interview is 0.8 and the corresponding prob. if the 2nd person wins is 0.3. What is the probability that the common interview will be introduced?	0.6
10	Only 1 in 1000 adults is afflicted with a rare disease for which a diagnostic test has been developed. The test is such that when an individual actually has the disease, a positive result will occur 99individual without the disease will show a positive test result only 2a randomly selected individual is tested and the result is positive, what is the probability that the individual has the disease?	0.047