

ASSIGNMENT- PROBABILITY

STD: XII

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Q.1) Find the probability distribution of the number of doublets in three tosses of a pair of dice.

Q.2) In a game, a man wins a rupee for a six and loses a rupee for any other number when a fair die is thrown. The man decided to throw a die thrice but to quit as and when he gets a six. Find the probability distribution of all the amounts he wins/loses.

Q.3) A bag contains 4 balls. Two balls are drawn at random (without replacement) and are found to be white. What is the probability that all the balls in the bag are white.

Q.4) Bag I contains 3 red and 4 black balls and bag II contains 4 red and 5 black balls. Two balls are transferred at random from bag I to bag II and then a ball is drawn from bag II. The ball so drawn is found to be red in color. Find the probability that the transferred balls were both black.

Q.5) A and B throw a pair of dice alternately, till one of them gets a total of 10 and wind the game. Find their respective probabilities of winning if A starts first.

Q.6) A letter is known to have come either from **TATANAGAR** or from **CALCUTTA**. On the envelope just two consecutive letters **TA** is visible. What is the probability that the letters came from **TATANAGAR**.

Q.7) A bag contains $2n+1$ coins. It is known that n of these coins have a head on both sides whereas the rest of the coins are fair. A coin is picked up at random from the bag and is tossed. If the probability that the toss results in a head is $\frac{31}{42}$, then find the value of n .

Q.8) If A and B are two independent events such that $P(A' \text{ and } B) = \frac{2}{15}$ and $P(A \text{ and } B') = \frac{1}{6}$. find $P(A)$ and $P(B)$.

Q.9) Two cards are drawn from a pack of 52 cards at random and kept out. Then one card is drawn from the remaining then find the probability that it is an ace.

Q.10) In answering a question on multiple choice questions test with four choices. A student knows the answer, guesses or copies the answer. If $\frac{1}{2}$ be the probability that he knows the answer, $\frac{1}{4}$ be the probability that he guesses it and $\frac{1}{4}$ that he copies it. Assuming that a student who copies the answer will be correct with probability $\frac{3}{4}$. What is the probability that the student knows the answer given that he answered it correctly.

ANSWERS.

Q.1) 0 - $\frac{125}{216}$, 1- $\frac{75}{216}$, 2- $\frac{15}{216}$, 3- $\frac{1}{216}$ Q2) 1- $\frac{1}{6}$, 0- $\frac{5}{36}$, -1 - $\frac{25}{216}$, -3 - $\frac{125}{216}$ Q3) $\frac{3}{5}$ Q4) $\frac{4}{17}$ Q5) $\frac{12}{23}$ and $\frac{11}{213}$ Q6) $\frac{7}{11}$ Q7) $n=10$ Q8) $\frac{1}{5}$ and $\frac{5}{6}$ Q 9) $\frac{1}{13}$ Q10) $\frac{2}{3}$.