PROBABILITY

 $P(A) = \frac{\text{Number of favourable outcomes}}{\text{Total number of outcomes}}$

For **Complimentary Events:** P(A) + P(A') = 1For **Exhaustive Events:** P(A) + P(B) + P(C) = 1

Addition Rule: P (A U B) = P(A) + P(B) – P(A \cap B)

For **Mutually Exclusive Events** $P(A \cap B) = 0$ $\Rightarrow P(A \cup B) = P(A) + P(B)$

Multiplication Rule: $P(A \cap B) = P(A) P(B/A) = P(B) P(A/B)$

For Independent Events $P\left(\frac{A}{B}\right) = P(B)$ and $P\left(\frac{B}{A}\right) = P(B)$

 $\Rightarrow P(A \cap B) = P(A).P(B)$

 $\Rightarrow P (A \cup B) = P(A) + P(B) - P(A).P(B)$

Concept: If the probability of an event occurring is P, then the probability of that event occurring 'r' times in 'n' trials is = ${}^{n}C_{r} \times P^{r} \times (1-P)^{n-r}$

Odds

Odds in favor=	Number of favourable outcomes
	Number of unfavourable outcomes
Odds against =	Number of unfavourable outcomes
	Number of favourable outcomes