Q. Determine the probability p, for each of the following events.
(a) An odd number appears in a single toss of a fair die.
(b) At least one head appears in two tosses of a fair coin.
(c) The sum of 6 appears in a single toss of a pair of fair dice.
Sol:

(a) **When a die is thrown the possible outcomes are**
S = {1, 2, 3,4, 5, 6} out of which 1, 3, 5 are odd,

$$\therefore \quad \text{Required probability} = \frac{3}{6} = \frac{1}{2}$$

(b) When a fair coin is tossed two times the sample space is
$S = \{HH, HT, TH, TT\}$
If at least one head appears then the favourable cases are HH, HT and TH.

$$\therefore \quad \text{Required probability} = \frac{3}{4}$$

(c) When a pair of dice is rolled, total number of cases $= 6 \times 6 = 36$
If sum is 6 then possible outcomes are $(1, 5), (5, 1), (2, 4), (4, 2)$ and $(3, 3)$.

$$\therefore \quad \text{Required probability} = \frac{5}{36}$$