

i) Mutually Exclusive Events:

Two events A and B of a single experiment are said to be mutually exclusive or **disjoint** if and only if they can't both occur at the same time. That is they have no common point. Similarly for two or more events.

$$A \cap B = \{\}$$

$$P(A \cap B) = 0.$$

$A, A_2, \dots, A_k = \{\}$
 \downarrow
 K mutually exclusive events.

ii) Exhaustive Events:

Events are said to be collectively exhaustive, when the union of mutually exclusive events is the entire Sample Space S.

$$\text{i.e.; } A \cup B = S$$

$$A_1 \cup A_2 \cup \dots \cup A_k = S$$

\hookrightarrow K exhaustive events

$$P(A \cup B) = 1$$



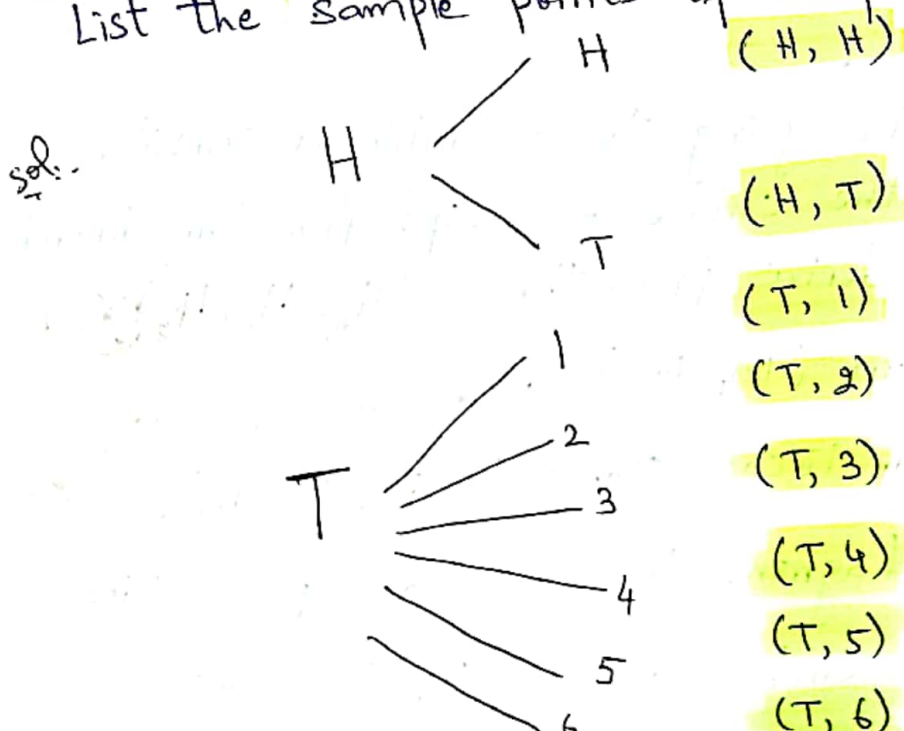
iii) Equally Likely Events:

Two events A and B are said to be equally likely, when one event is as likely to occur as the other.

Tree Diagram

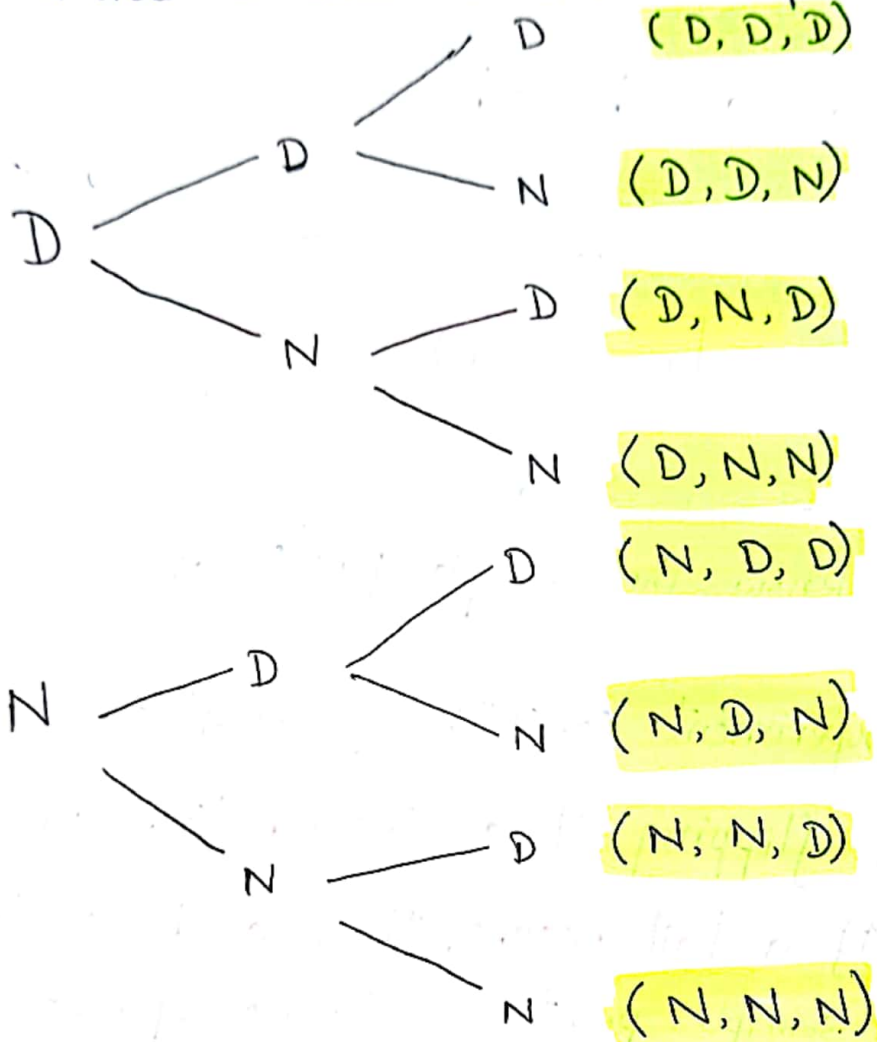
to know the Sample points of a Sample Space.

Q-1:- An experiment consists of flipping a coin and then flipping it a second time if a head occurs. If a tail occurs, then a die is tossed. List the sample points of Sample Space.



Q-2: Three items are selected at random from a manufacturing process. Each item is inspected and classified as defective (D) and Nondefective (N). Make a tree diagram to show all possibilities.

sol.



Practice: Sam is going to assemble a computer by himself. He has the choice of chips from two brands (C_1, C_2), a hard drive from three (H_1, H_2, H_3), memory from two (M_1, M_2) and an accessory bundle from four local stores (A_1, A_2, A_3, A_4). Make a tree diagram to show all possibilities for Sam to assemble a computer by himself. (6)