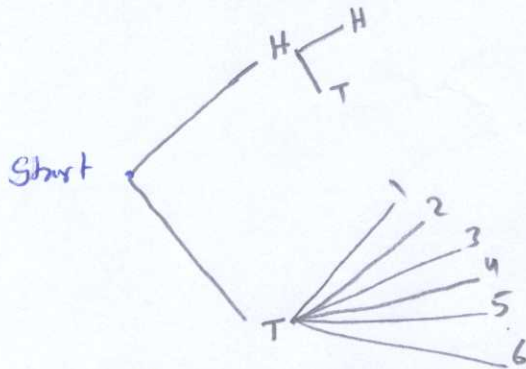


**Question 5: (5 Points)**

An experiment consists of flipping a coin and then flipping it a second time if a head occurs. If a tail occurs on the first flip, then a die is tossed once. (Use: H for head, T for tail)

a. Write the sample space. (1 point)



$$S = \{ HH, HT, T1, T2, T3, T4, T5, T6 \} \quad \text{\textcircled{1}}$$

b. Write the elements of the following events: (1 point each)

$E$ : the number appeared on the die is at least two,

$F$ : a head occur or the number is odd.

$$E = \{ T2, T3, T4, T5, T6 \} \quad \text{\textcircled{1}}$$

$$F = \{ HH, HT, T1, T3, T5 \} \quad \text{\textcircled{1}}$$

c. Do the events  $E$  and  $F$  are mutually exclusive? Why? (2 points)

$$E \cap F = \{ T3, T5 \} \quad \text{\textcircled{1}}$$

$$E \cap F \neq \emptyset \Rightarrow E \text{ and } F \text{ are not mutually exclusive} \quad \text{\textcircled{1}}$$