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1. A coin is tested four write the sample space of this experiment.

A)

**A balanced coin is tossed four times. So the possible outcomes can be following:**

**sample space is determined by  $2^4 = 16$**

<b>HHHH</b>	<b>HTHH</b>	<b>THHH</b>	<b>HTHT</b>
<b>HHHT</b>	<b>HTTH</b>	<b>TTHH</b>	<b>THTH</b>
<b>HHTT</b>	<b>HHTH</b>	<b>TTTH</b>	<b>THHT</b>
<b>HTTT</b>	<b>TTTT</b>	<b>TTHT</b>	<b>THTT</b>

**2. Suppose 3 bulbs are selected at random from a lot. Each bulb is tested and classified as defective ( $D$ ) or non-defective ( $N$ ). Write the sample space of this experiment?**

Ans) Given 3 bulbs are to be selected at random from the lot. Each bulb in the lot is tested and classified as defective ( $D$ ) or non-defective ( $N$ )

The sample space of this experiment is given by,

$$S = DDD, DDN, DND, DNN, NDD, NDN, NND, NNN$$

**3. A coin is tossed. If the outcome is a head a die is thrown. If the die shows up an even number the die is thrown again. What is the sample space for the experiment?**

Ans) When a coin is tossed the possible outcomes are head ( $H$ ) and tail ( $T$ )  
When a die is thrown the possible outcomes are 1, 2, 3, 4, 5 or 6  
Thus the sample space of this experiment is given by :

$$S = T, H_1, H_3, H_5, H_{21}, H_{22}, H_{23}, H_{24}, H_{25}, H_{26}, H_{41}, H_{42}, H_{43}, H_{44}, H_{45}, H_{46}, H_{61}, H_{62}, H_{63}, H_{64}, H_{65}, H_{66}$$