Probability Assignment -I

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***Abstract*—This manual includes LaTeXfigures.**

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Problem: Complete the following statements:

1) Probability of an event E + Probability of the event 'not E' = ——
   - **Solution: Let**
   - Probability of an event $\Pr(A) = \frac{1}{4}$
   - Probability of event not happening is $\Pr(A')$

$$= 1 - \Pr(A) = 1 - \frac{1}{4} = \frac{3}{4} \tag{1}$$

   - Total Probalbility is

$$= \Pr(A') + \Pr(A) \tag{2}$$
$$= \frac{1}{4} + \frac{3}{4} \tag{3}$$
$$= 1 \tag{4}$$

2) The probability of an event that cannot happen is = —— and such an event is called ——
   - **Solution:**
   - Probability of impossible event $\Pr(A)$ =

$$= 0 \tag{5}$$

   - Such an event is called Impossible event
3) The probability of an event that is certain to happen is = —— and Such an event is called ——
   - **Solution:**
   - Probability of certain event $\Pr(A)$ =

$$= 1 \tag{6}$$

   - Such an event is called certain or sure event
4) The sum of the probabilities of all the elementary events of an experiment is ——
   - **Solution:**
   - let there be three elementary events
   - Probability of first elementary event $\Pr(A) = \frac{1}{2}$
   - Probability of second elementary event $\Pr(B) = \frac{1}{3}$
   - Probability of third elementary event $\Pr(C)$ =

$$= 1 - \Pr(A) - \Pr(B) = 1 - \frac{1}{2} - \frac{1}{3} = \frac{1}{6} \tag{7}$$

   - Total Probalbility is

$$= \Pr(A) + \Pr(B) + \Pr(C) \tag{8}$$
$$= \frac{1}{2} + \frac{1}{3} + \frac{1}{6} \tag{9}$$
$$= 1 \tag{10}$$

5) The probability of an event is greater than or equal to —— and less than or ——
   - **Solution:**
   - Probability of an event $\Pr(A)$ =
   - if $\Pr(A)$ greater than 0 and $\Pr(A)$ less than 1
   - then it is a valid probability
   - else it is an invalid probability

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