

# Assignment

## 1 EE23010: Probability and Random Processes

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Question: If  $A$  and  $B$  are mutually exclusive events, then

1)  $\Pr(A) \leq B'$

2)  $\Pr(A) \geq B'$

3)  $\Pr(A) < B'$

4) none of these

**Solution:** Given,  $A$  and  $B$  are mutually exclusive events

So,

$$\Pr(AB) = 0 \quad (1)$$

Using axioms of probability we can write:

$$\Pr(A + B) \leq 1 \quad (2)$$

$$\Pr(A) + \Pr(B) - \Pr(AB) \leq 1 \quad (3)$$

$$\Pr(A) \leq 1 - \Pr(B) \quad (4)$$

$$\Pr(A) \leq B' \quad (5)$$

$\therefore$  Option (1) is correct.