

Assignment

EE23010: Probability and Random Processes

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

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

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

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

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:

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

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

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

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

\therefore Option (1) is correct.