12.13.3.62

Rambha Satvik*

If A and B are two events and A $\neq \phi$, B $\neq \phi$, then

1) $\Pr(A|B) = \Pr(A) \cdot \Pr(B)$
2) $\Pr(A|B) = \frac{\Pr(A \cap B)}{\Pr(B)}$
3) $\Pr(A|B) \cdot \Pr(B|A) = 1$
4) $\Pr(A|B) = \frac{\Pr(A)}{\Pr(B)}$

Solution:

Event	Random Variable	Description
A	0	Event A doesn't happen
	1	Event A happens
B	0	Event B doesn't happen
	1	Event B happens

1) $\Pr(A|B) = \Pr(A = 1, B = 1)$

*The author is with the Department of Electrical Engineering, Indian Institute of Technology, Hyderabad 502285 India e-mail: ee22btech11043@iith.ac.in.