Assignment 1

Ananthoju Pranav Sai - AI20BTECH11004

Download all python codes from

https://github.com/Ananthoju−Pranav−Sai/AI1103/tree/main/Assignment%201/codes

and latex codes from

https://github.com/Ananthoju−Pranav−Sai/AI1103/tree/main/Assignment%201/main.tex

PROBLEM(6.4)

If P(A/B)>P(A), then which of the following is correct :
(A) P(B/A)<P(B)
(B) P(AB)<P(A).P(B)
(C) P(B/A)>P(B)
(D) P(B/A)=P(B)

SOLUTION(6.4)

Given P(A/B)>P(A)
and since P(A/B) = $\frac{P(AB)}{P(B)}$ we have

$$\frac{P(AB)}{P(B)} > P(A) \tag{6.4.1}$$

$$\implies P(AB) > P(A).P(B) \tag{6.4.2}$$

Hence, option (B) is false. Now, dividing the equation by P(A) on both sides i.e.,

$$\frac{P(AB)}{P(A)} > P(B) \tag{6.4.3}$$

But $\frac{P(AB)}{P(A)}$ = P(B/A). Therefore, from (6.4.3)

$$P(B/A) > P(B) \tag{6.4.4}$$

Hence, option (C) is correct.