ASSIGNMENT NO 4

1.Is it possible that an event is independent of itself? If so, when?

ANS: The event A is said to be independent of itself if and only if P(A)=1 or P(A)=0.

2. Is it always true that if A and B are independent events, then B and A are independent events? Show that it is, or give a counterexample.

ANS:

If A is independent of B, we have

$P(A \mid B) = P(A)$ or $P(A \cap B) / P(B)$

$= P(A)$ or $P(A \cap B)$

$= P(A)\ P(B)$ … (I)

$P(B|A) = P(A \cap B) / P(A)$

$= [P(A)\ P(B)] / P(A)$

$= P(B)$ ….[from I]

So B is also independent of A.