

Probability Assignment

Gautam Singh

Abstract—This document contains the solution to Question 17 of Exercise 1 in Chapter 13 of the class 12 NCERT textbook.

1) If A and B are events such that

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

then

- a) $A \subset B$ but $A \neq B$
- b) $A = B$
- c) $A \cap B = \phi$
- d) $\Pr(A) = \Pr(B)$

Solution: Using Bayes' Rule,

$$\Pr(A, B) = \Pr(A) \Pr(B|A) \quad (2)$$

$$= \Pr(B) \Pr(A|B) \quad (3)$$

Using (1) in (2) and (3), we get $\Pr(A) = \Pr(B)$.

Hence, option **d)** is correct.