

ASSIGNMENT 4

Deepshikha(CS21BTECH11016)

Abstract—This document contains the solution for Assignment 4 (Class 11 Maths CBSE Ex 16.3.20).

Ex 16.3.20: The probability that a student will pass the final examination in both English and Hindi is 0.5 and the probability of passing neither is 0.1. If the probability of passing the English examination is 0.75, what is the probability of passing the Hindi examination?

Solution: Let E and H denote the events that a student passes English and Hindi exams respectively.

Given,

$$\Pr(E \cap H) = 0.5 \quad (1)$$

$$\Pr(E' \cap H') = 0.1 \quad (2)$$

$$\Pr(E) = 0.75 \quad (3)$$

From equation (2),

$$\Pr(E' \cap H') = 1 - \Pr(E \cup H) \quad (4)$$

$$\implies \Pr(E \cup H) = 1 - \Pr(E' \cap H') \quad (5)$$

$$= 1 - 0.1 \quad (6)$$

$$= 0.9 \quad (7)$$

From equation (7),

$$\Pr(E) + \Pr(H) - \Pr(E \cap H) = 0.9 \quad (8)$$

Using equation (1),(3) in equation (8),

$$0.75 + \Pr(H) - 0.5 = 0.9 \quad (9)$$

$$\implies \Pr(H) = 0.9 + 0.5 - 0.75 \quad (10)$$

$$= 0.65 \quad (11)$$