Assignment

Barath Surya M (EE22BTECH11014)

question 10.13.3.40

A lot consists of 48 mobile phones of which 42 are good, 3 have only minor defects and 3 have major defects. Varnika will buy a phone, if it is good but the trader will only buy a mobile, if it has no major defects. One phone is selected at random from the lot. What is the probability that it is

1) acceptable to Varnika?
2) acceptable to the trader?

Solution:

1) Varnika buys a mobile

$$X = \begin{cases} 1, & \text{The mobile is good} \\ 0, & \text{Otherwise} \end{cases} \tag{1}$$

Then,

$$p_X(1) = \frac{42}{48} \tag{2}$$

$$= \frac{7}{8} \tag{3}$$

2) Trader will buy a mobile

$$X = \begin{cases} 1, & \text{the mobile has major defects} \\ 0, & \text{Otherwise} \end{cases} \tag{4}$$

Then,

$$p_X(0) = 1 - p_x(1) \tag{5}$$

$$= 1 - \frac{3}{48} \tag{6}$$

$$= \frac{15}{16} \tag{7}$$