

PROBABILITY

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IITH Future Wireless Communication (FWC)

Module 2

Q-12,13.2,6

Let E and F be events with $P(E)=\frac{3}{5}$, $P(F)=\frac{3}{10}$ and $P(E \cap F)=\frac{1}{5}$. Are E and F independent?

Given:

P(E) and P(F) are given

solution

Given, $P(E) = \frac{3}{5}$, $P(F)=\frac{3}{10}$ and $P(E \cap F)=\frac{1}{5}$

Two events are said to be independent if

$$P(E \cap F) = P(E).P(F)$$

$$P(E).P(F)=\frac{3}{5} \cdot \frac{3}{10} = \frac{9}{50}$$

$$P(E \cap F)=\frac{1}{50}$$

Since, $P(E \cap F) \neq P(E).P(F)$

\therefore E and F are not independent events