## Department of Computer Science and Engineering

# Assignment

**Course Code: STA227**

**Course Tittle: Statistics & Probability**

**Topic Name: Basic Concepts of Probability**


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1.

(a)

let,

A = Female $P(A) = \frac{165}{346}$

B = did not graduate $P(B) = \frac{87}{346}$

$\therefore A \cap B = P(A \cap B) = \frac{32}{346}$

$\therefore$ P (female or did not graduate)

$$= \frac{165 + 87 - 32}{346}$$

$$= \frac{226}{346} = 0.636$$

(b)

P (graduated and male)

Graduated male = 126

$$P = \frac{126}{346} = 0.3642$$

(C)

Conditional probability

$$P(\text{Graduated} \mid \text{Female}) = \frac{P(\text{Graduated and Female})}{P(\text{Female})}$$

$$= \frac{133}{165}$$

$$= 0.8061$$

2. (1)

Here,

English = 60

French = 50

Both = 20

So,

$$P(\text{English} \mid \text{French}) = \frac{P(\text{English} \cap \text{French})}{P(\text{French})}$$

$$= \frac{20}{50} = 0.4$$

(2)

P (Jack or Andy hits the target)

- Jack hits $= \frac{5}{7}$ → misses $= \frac{2}{7}$
- Andy hits $= \frac{6}{11}$ → misses $= \frac{5}{11}$

$$P(\text{both miss}) = \frac{2}{7} \cdot \frac{5}{11} = \frac{10}{77}$$

$$P(\text{at least one hits}) = 1 - \frac{10}{77} = \frac{67}{77} = 0.8701$$

(3)

Russell wins both matches

Cricket = 0.7

Football = 0.9

P (Win both) = 0.7 × 0.9

= 0.63

⇒ p (not win both) = 1 − 0.63

= 0.37

(4)

marble problem

total = 3 blue + 2 red + 4 yellow

= 9

P (red first) = $\frac{2}{9}$ , p (yellow second) = $\frac{4}{9}$

⇒ P = $\frac{2}{9} \cdot \frac{4}{9} = \frac{8}{81}$

= 0.0988

(5)

Probability of death for mr.x = $\frac{1}{5}$ ,

mr.Y = $\frac{1}{7}$

let,

P(x) = $\frac{1}{5}$ . P(y) = $\frac{1}{7}$

(i) Both die,

$$P = \frac{1}{3} \cdot \frac{1}{7} = \frac{1}{35}$$

(ii) At least One dies

$$P(\text{at least one}) = 1 - P(\text{both survive})$$

$$= 1 - \left(\frac{4}{5} \cdot \frac{6}{7}\right) = 1 - \frac{24}{35}$$

$$= \frac{11}{35}$$

(iii) Neither dies

$$P = \frac{4}{5} \cdot \frac{6}{7}$$

$$= \frac{24}{35}$$