PROBABILITY

INTRODUCTION OF PROBABILITY & CONDITIONAL PROBABILITY

EXERCISE

Q.1 If E and F are two events associated with the same sample space in a random experiment, the probability of E given F, denoted as P(E|F), is formulated as _____.

(a) $\frac{P(E \cap F)}{P(F)}$, provided $P(F) \neq 0$

(b) $\frac{P(E \cap F)}{P(F)}$, provided $P(F) = 0$

(c) $\frac{P(E \cap F)}{P(F)}$

(d) $\frac{P(E \cap F)}{P(E)}$

Q.2 In the context of events E and F within a sample space S of an experiment, if $P(S|F) = P(F|F)$, then the value of P(S|F) is _____.

(a) 0 (b) -1 (c) 1 (d) 2

Q.3 Given events E and F with probabilities $P(E) = 0.6$, $P(F) = 0.3$, and $P(E \cap F) = 0.2$, what is the value of P(E|F)?

(a) $\frac{2}{3}$ (b) $\frac{1}{3}$ (c) $\frac{3}{4}$ (d) $\frac{1}{4}$

Q.4 If $P(E) = 0.5$, $P(F) = 0.4$, and $P(E \cap F) = 0.3$, what is the value of P(F|E)?

(a) $\frac{2}{5}$ (b) $\frac{3}{5}$ (c) $\frac{3}{4}$ (d) $\frac{2}{4}$

Q.5 Let E and F be events of a sample space S of an experiment, if P(S|F) = P(F|F), then find the value of P(F|F) is _____

(a) 0 (b) -1 (c) 1 (d) 2

Q.6 If the probabilities are given by $P(A) = \frac{7}{11}$, $P(B) = \frac{6}{11}$, and $P(A \cup B) = \frac{8}{11}$, what is the value of P(A|B)?

(a) $\frac{3}{5}$ (b) $\frac{2}{3}$ (c) $\frac{1}{2}$ (d) 1

Q.7 Given $P(A) = \frac{1}{5}$ and P(B) = 0, then find P(A|B).

(a) 0 (b) 1 (c) Not defined (d) $\frac{1}{5}$

Q.8 Given $P(A) = \frac{5}{13}$, $P(B) = \frac{7}{13}$, and $P(A \cap B) = \frac{3}{13}$, calculate P(A|B).

(a) $\frac{1}{7}$ (b) $\frac{3}{7}$ (c) $\frac{3}{5}$ (d) $\frac{2}{7}$

ANSWER KEY

1. (a)

2. (c)

3. (a)

4. (b)

5. (c)

6. (d)

7. (c)

8. (b)