PROBABILITY

BAYES THEOREM

EXERCISE

Q.1 The process in which previously calculated probabilities are updated with new probability values is referred to as _____.

(a) Revision theorem (b) Bayes theorem

(c) Dependent theorem (d) Updating theorem

Q.2 Formula for Bayes theorem is _____

(a) $P(A|B) = \frac{P(B|A)P(A)}{P(B)}$ (b) $P(A|B) = \frac{P(A)}{P(B)}$

(c) $P(A|B) = \frac{P(B|A)}{P(B)}$ (d) $P(A|B) = \frac{1}{P(B)}$

Q.3 What is the Formula of conditional probability P(A|B).

(a) $P(A|B) = \frac{P(A \cap B)}{P(B)}$ (b) $P(A|B) = \frac{P(A \cap B)}{P(A)}$

(c) $P(A|B) = \frac{P(A)}{P(B)}$ (d) $P(A|B) = \frac{P(B)}{P(A)}$

Q.4 The prior probabilities in Bayes Theorem that are updated with new available information are referred to as _____.

(a) independent probabilities (b) dependent probabilities

(c) interior probabilities (d) posterior probabilities

Q.5 A man, who is known to tell the truth 3 out of 4 times, throws a die and claims it is a six. Calculate the probability that it is indeed a six.

(a) $\frac{1}{8}$ (b) $\frac{5}{8}$ (c) $\frac{2}{7}$ (d) $\frac{3}{8}$

Q.6 Bag 1 holds 3 red and 5 black balls, and Bag 2 holds 4 red and 6 black balls. A ball is randomly drawn from one of the bags, and it turns out to be red. Determine the probability that it was drawn from Bag 2.

(a) $\frac{31}{62}$ (b) $\frac{16}{62}$ (c) $\frac{16}{31}$ (d) $\frac{31}{32}$

Q.7 In Bag 1, there are 4 white and 6 black balls, while Bag 2 contains 4 white and 3 black balls. A ball is randomly drawn from one of the bags, and it turns out to be black. Determine the probability that it was drawn from Bag 1.

(a) $\frac{12}{13}$ (b) $\frac{5}{12}$ (c) $\frac{7}{11}$ (d) $\frac{7}{12}$

ANSWER KEY

1. (b)

2. (a)

3. (a)

4. (d)

5. (d)

6. (c)

7. (d)