CLASS 12

PROBABILITY

MULTIPLICATION THEOREM

EXERCISE

Q.1 Which of the following represents the multiplication theorem of probability? (b) $P(A \cap B) = P(A) P(B/A)$ (a) $P(A \cap B) = P(B) P(B/A)$ (d) $P(A \cap B) = P(A) P(A/A)$ (c) $P(A \cap B) = P(A) P(B/B)$ Q.2 A box holds 5 brown and 7 black pebbles. What is the probability of drawing a brown pebble if the first pebble drawn is black? The drawn pebbles are not placed back into the box. (a) $\frac{5}{11}$ (c) $\frac{4}{18}$ (b) $\frac{8}{11}$ (d) $\frac{14}{11}$ Q.3 Which of these expressions represents the multiplication theorem of probability? (a) $P(A \cap B) = P(B) P(B/A)$ (b) $P(A \cap B) = P(A) P(B/B)$ (c) $P(A \cap B) = P(A) P(A/A)$ (d) $P(A \cap B) = P(B) P(A/B)$ A bag holds 6 pink and 8 white pebbles. What is the probability of drawing a brown Q.4 pebble if the first pebble drawn is pink? The drawn pebbles are not placed back into the bag. (b) $\frac{8}{11}$ (d) $\frac{14}{11}$ (c) 1 (a) 0Q.5 A bag holds 9 identical balls, of which 4 are blue and 6 are green. Three balls are drawn randomly from the bag consecutively. Determine the probability that all three balls are blue. $(a)\frac{5}{8}$ $(b)\frac{6}{19}$ $(c)\frac{5}{21}$ $(d)\frac{4}{7}$ A box holds 3 red and 4 blue marbles. Two marbles are drawn without replacement. Q.6 Determine the probability that the second marble is red given that the first marble is

red.

(a) $\frac{3}{7}$ (b) $\frac{4}{7}$ (c) $\frac{1}{3}$ (d) $\frac{1}{7}$

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Q.7 In a bag with 4 red and 7 blue balls, what is the probability of drawing a blue ball if the first ball drawn is red, and the drawn ball is then replaced in the bag?

(a)
$$\frac{8}{11}$$
 (b) $\frac{7}{11}$ (C) $\frac{4}{11}$ (d) $\frac{7}{4}$

Q.8 In a bag containing 4 red and 7 blue balls, what is the probability of drawing a blue ball if the first ball drawn is red, and the drawn ball is not replaced in the bag?

(a)
$$\frac{7}{10}$$
 (b) $\frac{8}{10}$ (c) $\frac{7}{1}$ (d) $\frac{4}{11}$

Q.9 In a bag with 4 red and 7 blue balls, what is the probability of drawing a red ball if the first ball drawn is blue, and the drawn ball is not replaced in the bag?

(a)
$$\frac{7}{11}$$
 (b) $\frac{7}{10}$ (c) $\frac{4}{10}$ (d) $\frac{9}{11}$

Q.10 If a bag contains 4 red and 7 blue balls, what is the probability of drawing a red ball if the first ball drawn is blue, and the drawn ball is replaced in the bag?

(a)
$$\frac{4}{11}$$
 (b) $\frac{8}{11}$ (C) $\frac{4}{18}$ (d) $\frac{14}{11}$

Q.11 In a bag containing 3 red, 2 white, and 4 green balls, what is the probability of drawing a white ball as the second draw, given that the first ball drawn is white, and the balls are not replaced in the bag?

(a)
$$\frac{1}{9}$$
 (b) $\frac{2}{9}$ (c) $\frac{7}{8}$ (d) $\frac{1}{8}$

Q.12 In a bag containing 3 red, 2 white, and 4 green balls, what is the probability of drawing a white ball as the second draw, given that the first ball drawn is white, and the balls are replaced in the bag?

(a) $\frac{1}{9}$ (b) $\frac{2}{9}$ (c) $\frac{1}{8}$ (d) $\frac{2}{8}$

Q.13 If the first ball drawn from a bag containing 3 red, 2 white, and 4 green balls is red, and the balls are replaced in the bag, what is the probability of drawing a green ball as the second draw?

(a)
$$\frac{3}{9}$$
 (b) $\frac{4}{9}$ (c) $\frac{4}{3}$ (d) $\frac{4}{17}$

Q.14 If the first ball drawn from a bag containing 3 red, 2 white, and 4 green balls is red, and the balls are not replaced in the bag, what is the probability of drawing a green ball as the second draw?

(a) 0.82 (b) 0.91 (c) 1.23 (d) 0.5

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Q.15 In a bag containing 3 red, 2 white, and 4 green balls, if the first ball drawn is red and the balls are not replaced in the bag, what is the probability of drawing a yellow ball as the second draw?

| 3 2 | (a) $\frac{1}{3}$ | (b) $\frac{1}{2}$ | (c) 1 | (d) 0 |
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ANSWER KEY

- **1.** (b)
- **2.** (a)
- **3.** (d)
- **4.** (a)
- 5. (c)
- **6.** (c)
- **7.** (b)
- **8.** (a)
- **9.** (c)
- **10.** (a)
- **11.** (d)
- **12.** (c)
- **13.** (b)
- **14.** (d)
- **15.** (d)