Probability Questions for Bank Clerk Pre Exams.

Probability Quiz 2

Direction : Read the following questions carefully and choose the right answer.

1. There are 15 boys and 10 girls in a class. If three students are selected at random, what is the probability that 1 girl and 2 boys are selected?

A. $\frac{1}{40}$ B. $\frac{1}{2}$ C. $\frac{21}{46}$ D. $\frac{7}{41}$ E. None of these

2. Three dice are thrown together. Find the probability of getting a total of at least 6 ?

A. $\frac{103}{216}$ B. $\frac{103}{208}$ C. $\frac{103}{108}$ D. $\frac{36}{103}$ E. None of these

3. A bag contains 6 pink and 5 yellow balls. One ball is drawn randomly. What is the probability that the ball drawn is Pink?

A. $\frac{5}{11}$ B. $\frac{1}{2}$ C. $\frac{3}{11}$ D. $\frac{6}{11}$ E. None of these

4. In a box there are 10 apples and 2/5th of the apples are rotten. If three apples are taken out from the box, what will be the probability that at least one apple is rotten.

A. $\frac{3}{4}$ B. $\frac{5}{6}$ C. $\frac{9}{10}$ D. $\frac{8}{13}$ E. $\frac{4}{7}$

5. A bag contains 5 yellow and 2 green and 3 red colour dice. If one dice from the bag are choosen at random, what is the probability that dice is either yellow or red colour?

A. $\frac{3}{4}$ B. $\frac{4}{5}$ C. $\frac{3}{10}$ D. $\frac{7}{10}$ E. None of these

6. A box contains 2 pink pens, 3 violet pens and 4 green pens. Find the probability of selecting 3 pens from the box such that at least 1 pen is green?

A. $\frac{12}{40}$ B. $\frac{29}{31}$ C. $\frac{23}{28}$ D. $\frac{37}{42}$ E. None of these

7. There are 6 Green, 5 Red and 3 white balls in a bag. If 3 balls are drawn randomly what is the probability that no ball is Red?

A. $\frac{6}{13}$ B. $\frac{9}{17}$ C. $\frac{3}{13}$ D. $\frac{5}{14}$ E. None of these

8. Probability of grasshopper eating grass = $\frac{1}{5}$

Probability of frog eating grasshopper = $\frac{1}{6}$

Probability of snake eating frog = $\frac{1}{7}$

Probability of hawk eating snake = $\frac{1}{8}$

Probability of man eating hawk = $\frac{1}{9}$

What is the probability of a man eating a hawk who has eaten a snake which had consumed a frog who ate a grasshopper which didn't eat grass?

A. $\frac{1}{756}$ B. $\frac{1}{3780}$ C. $\frac{1}{4096}$ D. $\frac{1}{2048}$ E. None of these

9. There are 4 cotton kurties, 3 woolen kurties and 5 nylon kurties. If 3 kurties are selected at random, what is the probability that none of them are nylon kurties?

A. $\frac{9}{32}$ B. $\frac{11}{40}$ C. $\frac{7}{44}$ D. $\frac{12}{47}$ E. $\frac{1}{7}$

10. There are 50 students in a class. 40% of the students like Orange and 50% of the students like Mango. If 10 students like both of them, then how many students like either Orange or Mango or both of them?

A. 30 B. 35 C. 40 D. 45 E. None of these

Correct Answers:

1	2	3	4	5	6	7	8	9	10
C	C	D	B	B	D	C	B	C	B

Explanations:

1. Total number of ways of selecting 3 students from 25 students = ${}^{25}C_3$

Number of ways of selecting 1 girl and 2 boys = selecting 2 boys from 15 boys and 1 girl from 10 girls

$\Rightarrow$ Number of ways in which this can be done = ${}^{15}C_2 \times {}^{10}C_1$

$\Rightarrow$ Required probability = $\frac{({}^{15}C_2 \times {}^{10}C_1)}{({}^{25}C_3)}$

$= \frac{21}{46}$

Hence, option C is correct.

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2. Since one die can be thrown in six ways to obtain any one of the six numbers marked on its six faces

$\Rightarrow$ Total number of elementary events = 6 x 6 x 6 = 216

Let A be the event of getting a total of at least 6.Then $\bar{A}$ denotes the event of getting a total of less than 6 i.e. 3, 4, 5.

$\Rightarrow \bar{A}$ = { (1,1,1), (1,1,2), (1,2,1), (2,1,1), (1,1,3),(1,3,1), (3,1,1), (1,2,2), (2,1,2), (2,2,1) }

So, favourable number of cases = 10

$\Rightarrow P(\bar{A}) = \frac{10}{216}$

$\Rightarrow 1 - P(A) = \frac{10}{216}$

$\Rightarrow P(A) = 1 - \frac{10}{216}$

$= \frac{103}{108}$

Hence, option (C) is correct.

3.

Probability of 1 Pink Ball = $\frac{{}^{6}C_1}{{}^{11}C_1}$

$= \frac{6}{11}$

Hence, option D is correct.

4.

Let rotten apples = $10 \times \frac{2}{5} = 4$, others = 6

If 1 apple is rotten + 2 apples are other

$= {}^4C_1 \times {}^6C_2 = 60$

If 2 apples are rotten + 1 apple is other

$= {}^4C_2 \times {}^6C_1 = 36$

If 3 apples are rotten

$= {}^4C_3 = 4$

Total outcomes $= {}^{10}C_3 = 120$

Probability $= \frac{60 + 36 + 4}{120}$

$= \frac{100}{120} = \frac{5}{6}$

Hence, option B is correct.

5.

Probability of 1 yellow dice $= \frac{{}^5C_1}{{}^{10}C_1}$

Probability of 1 red dice $= \frac{{}^3C_1}{{}^{10}C_1}$

Total outcomes $= \frac{{}^5C_1}{{}^{10}C_1} + \frac{{}^3C_1}{{}^{10}C_1}$

$= \frac{5}{10} + \frac{3}{10}$

$= \frac{8}{10} = \frac{4}{5}$

Hence, option B is correct.

6. Probability that at least 1 pen is green = 1 – Probability that none of the selected pens is green

Now, number of ways in which no green pen is selected $= {}^5C_3$ (as there are five non-green pens)

And, number of ways of selecting three pens out of nine $= {}^9C_3$

P(atleast 1 green pen)

$= 1 - \frac{{}^5C_3}{{}^9C_3} = 1 - \frac{10}{84} = \frac{74}{84} = \frac{37}{42}$

Hence option D is correct

7. $n(E) = {}^{9}C_3$

$n(S) = {}^{14}C_3$

Possibility = $\frac{{}^{9}C_3}{{}^{14}C_3}$

$$= \frac{\frac{9 \times 8 \times 7}{3 \times 2 \times 1}}{\frac{14 \times 13 \times 12}{3 \times 2 \times 1}} = \frac{3}{13}$$

Hence, option C is correct.

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8. Probability of grasshopper not eating grass

$= 1 - \frac{1}{5} = \frac{4}{5}$

Reqd. probability = $\frac{1}{9} \times \frac{1}{8} \times \frac{1}{7} \times \frac{1}{6} \times \frac{4}{5} = \frac{1}{3780}$

Hence, option B is correct.

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9. 3 kurties out of 12 kurties can be chosen in ${}^{12}C_3$ ways

As given in the question above that we don't have to choose any nylon kurti

∴ we have to select 3 kurties out of the remaining 7 kurties.

This can be done in ${}^{7}C_3$ ways

∴ Reqd. probability = $\frac{{}^{7}C_3}{{}^{12}C_3}$

$= \frac{7 \times 6 \times 5}{12 \times 11 \times 10} = \frac{7}{44}$

Hence, option C is correct.

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10. The distribution of the fruits are given below:

The number students who like only Mangoes- 40% of 50 = 20

The number students who like only Oranges- 50% of 50 = 25

$n(A \cup B) = n(A) + n(B) - n(A \cap B)$

Therefore, the number of students who like either Orange or Mango or both of them = 20 + 25 – 10 = 35

Hence, option B is correct.