

NDA 2 2024

LIVE

MATHS

PROBABILITY

CLASS 2

NAVJYOTI SIR

SSBCrack
EXAMS

Crack
EXAMS



06 July 2024 Live Classes Schedule

8:00AM

06 JULY 2024 DAILY CURRENT AFFAIRS

RUBY MA'AM

9:00AM

06 JULY 2024 DAILY DEFENCE UPDATES

DIVYANSHU SIR

NDA 2 2024 LIVE CLASSES

11:30AM

GK - WORLD HISTORY - CLASS 2

RUBY MA'AM

1:00PM

GS - PHYSICS - CLASS 6

NAVJYOTI SIR

4:00PM

MATHS - PROBABILITY - CLASS 2

NAVJYOTI SIR

CDS 2 2024 LIVE CLASSES

11:30AM

GK - WORLD HISTORY - CLASS 2

RUBY MA'AM

1:00PM

GS - PHYSICS - CLASS 6

NAVJYOTI SIR



PROBABILITY DISTRIBUTION

Let S be the sample space in a random experiment.
Then, a real valued function X which assigns to each outcome $r \in S$ to a unique real number $X(r)$ is called a random variable.

function

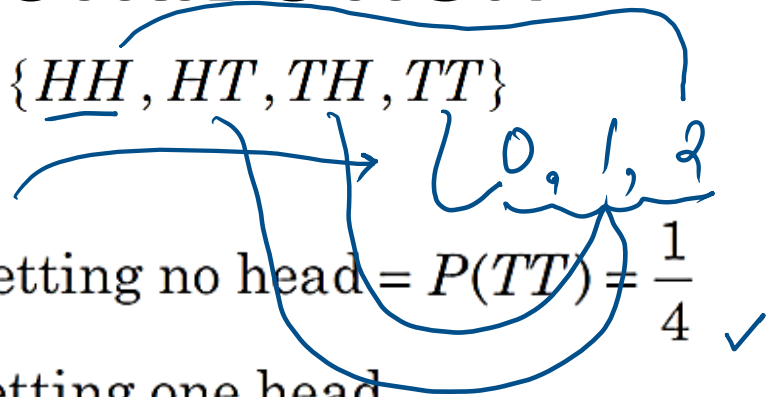
Every outcome in \longrightarrow Real number

S / Every possible
outcome

PROBABILITY DISTRIBUTION

In tossing of two coins $S = \{HH, HT, TH, TT\}$

$X(r)$ = Number of heads



$P(X = 0)$ = Probability of getting no head = $P(TT) = \frac{1}{4}$ ✓

$P(X = 1)$ = Probability of getting one head
 = $P(HT \text{ or } TH) = \frac{1}{2}$

$P(X = 2)$ = Probability of getting two heads
 = $P(HH) = \frac{1}{4}$

$P(x=0) + P(x=1) + P(x=2) = 1$
 $\frac{1}{4} + \frac{1}{2} + \frac{1}{4} = 1$ ✓

Probability distribution of X is given by

X	0	1	2
$P(X)$	$\frac{1}{4}$ ✓	$\frac{1}{2}$ ✓	$\frac{1}{4}$ ✓

BINOMIAL DISTRIBUTION

If probability of success of an event A in a random experiment is p and probability of its failure is q ($p + q = 1$), experiment is being repeated independently n times, then probability of exactly r success out of n trials is ${}^n C_r p^r q^{n-r}$. (Bernoulli's trials)

p - probability of success

q - " " " failure

$$p + q = 1$$

$$q = 1 - p$$

10 coins toss \equiv 1 coin tossing 10 times,

$P(\text{getting 6 times as head})$

$$= p = \frac{1}{2} \quad q = 1 - \frac{1}{2} = \frac{1}{2}$$

$${}^n C_r p^r q^{n-r} \quad P(X=6) = {}^{10} C_6 \left(\frac{1}{2}\right)^6 \left(\frac{1}{2}\right)^{10-6}$$

Probability of atleast one success

$$= 1 - P \text{ (no success)}$$

$$= 1 - {}^n C_0 p^0 q^n = 1 - q^n.$$

$$\text{Mean} = np$$

$$\text{Variance} = npq$$

$$\text{Standard Deviation (SD)} = \sqrt{\text{variance}} = \sqrt{npq}$$

Q) A pair of a dice thrown, if 5 appears on at least one of the dice, then the probability that the sum is 10 or greater, is

(a) $\frac{11}{36}$

(b) $\frac{2}{9}$

(c) $\frac{3}{11}$

(d) $\frac{1}{12}$

$5 \ 5 \text{ ---}$

$5 \ 6 \text{ ---}$

$6 \ 5 \text{ ---}$

$$\frac{3}{36} = \frac{1}{12}$$

$$\underline{6^2} = 6 \times 6 = \underline{36}$$

Q) A pair of a dice thrown, if 5 appears on at least one of the dice, then the probability that the sum is 10 or greater, is

(a) $\frac{11}{36}$

(b) $\frac{2}{9}$

(c) $\frac{3}{11}$

(d) $\frac{1}{12}$

Ans: (d)

Q) Five coins whose faces are marked 2, 3 are tossed.
The chance of obtaining a total of 12 is

- (a) $\frac{1}{32}$ (b) $\frac{1}{16}$ (c) $\frac{3}{16}$ ~~(d) $\frac{5}{16}$~~

$$n(s) = 2^5 = \underline{32}$$

$$P(E) = \frac{n(E)}{n(s)} = \frac{10}{32} = \left(\frac{5}{16} \right)$$

$$\underline{2} \quad \underline{2} \quad \underline{2} \quad \underline{3} \quad \underline{3}$$

$$n(E) = \frac{5!}{3!2!} = \frac{\cancel{2} \times 5}{\cancel{2}} = \left(10 \right)$$

Q) Five coins whose faces are marked 2, 3 are tossed.
The chance of obtaining a total of 12 is

(a) $\frac{1}{32}$

(b) $\frac{1}{16}$

(c) $\frac{3}{16}$

(d) $\frac{5}{16}$

Ans: (d)

Q) A husband and wife appear in an interview for two vacancies in the same post. The probability of husband's selection is $\frac{1}{5}$ and that of wife's selection is $\frac{1}{3}$. What is the probability that only one of them will be selected?

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

~~(b)~~ $\frac{2}{5}$
(d) $\frac{4}{5}$

$$= P(W)P(\bar{H}) + P(\bar{W})P(H)$$

$$= \frac{1}{3} \left(1 - \frac{1}{5}\right) + \left(1 - \frac{1}{3}\right) \frac{1}{5}$$

$$= \frac{1}{3} \times \frac{4}{5} + \frac{2}{3} \times \frac{1}{5} = \frac{4+2}{15} = \frac{2}{5}$$

Q) A husband and wife appear in an interview for two vacancies in the same post. The probability of husband's selection is $\frac{1}{5}$ and that of wife's selection is $\frac{1}{3}$. What is the probability that only one of them will be selected?

(a) $\frac{1}{5}$

(c) $\frac{3}{5}$

(b) $\frac{2}{5}$

(d) $\frac{4}{5}$

Ans: (b)

Q) The mean and variance of a binomial distribution are 6 and 4, respectively. The parameter n is

(a) 18

(b) 12

(c) 10

(d) 9

$$np = 6$$

$$npq = 4$$

$$q = \frac{\text{Variance}}{\text{Mean}} \left(\frac{npq}{np} \right) = \frac{4}{6} = \frac{2}{3}$$

$$p = 1 - q = 1 - \frac{2}{3} = \frac{1}{3}$$

$$np = 6$$

$$n \left(\frac{1}{3} \right) = 6$$

$$n = 6 \times 3$$

$$n = 18$$

Q) The mean and variance of a binomial distribution are 6 and 4, respectively. The parameter n is

- (a) 18 (b) 12 (c) 10 (d) 9

Ans: (a)

Q) For a binomial distribution $B(n, p)$, $np = 4$ and variance $npq = 4/3$. What is value of the probability $P(x \geq 5)$?

(a) $\left(\frac{2}{3}\right)^6$

(b) $\frac{2^5}{3^6}$

(c) $\left(\frac{1}{3}\right)^6$

(d) $\frac{2^8}{3^6}$

$np = 4$

$np = 4$

$npq = \frac{4}{3}$

$n\left(\frac{2}{3}\right) = 4$

$q = \frac{4/3}{4} = \frac{1}{3}$

$n = 6$

$p = \frac{2}{3}$

$P(x \geq 5) = P(x=5) + P(x=6)$

$= {}^6C_5 (p)^5 (q)^{6-5} + {}^6C_6 (p)^6 (q)^{6-6}$

$= 6 \left(\frac{2}{3}\right)^5 \left(\frac{1}{3}\right)^1 + 1 \times \left(\frac{2}{3}\right)^6 \left(\frac{1}{3}\right)^0$

$= \frac{6 \times 2^5}{3^6} + \frac{2^6}{3^6} = \frac{3 \times 2^6 + 2^6}{3^6}$

$= \frac{2^8}{3^6}$

Q) For a binomial distribution $B(n, p)$, $np = 4$ and variance $npq = 4/3$. What is value of the probability $P(x \geq 5)$?

(a) $\left(\frac{2}{3}\right)^6$

(b) $\frac{2^5}{3^6}$

(c) $\left(\frac{1}{3}\right)^6$

(d) $\frac{2^8}{3^6}$

Ans: (d)

Q) A coin is tossed 4 times. The probability that at least one head turns up, is

(a) $1/16$

(b) $2/16$

(c) $14/16$

(d) $15/16$

at least one \longrightarrow one and
greater than one.

$$P(1) + P(2) + P(3) + P(4)$$

$$= 1 - P(0) \{ 1 - P(\text{no heads}) \}$$

$$= 1 - \frac{1}{2^4} = 1 - \frac{1}{16} = \underline{\underline{\frac{15}{16}}}$$

Q) A coin is tossed 4 times. The probability that at least one head turns up, is

(a) $1/16$

(b) $2/16$

(c) $14/16$

(d) $15/16$

Ans: (d)

Q) If A and B are any two events such that

$$P(\bar{A}) = 0.4, P(\bar{B}) = 0.3, P(A \cup B) = 0.9, \text{ then what is the}$$

value of $P(\bar{A} \cup \bar{B})$ equal to ?

- (a) 0.2 (b) 0.5
 (c) 0.6 (d) 0.7

$$\begin{aligned} P(A' \cup B') &= P(A \cap B)' \\ &= 1 - P(A \cap B) \\ &= 1 - 0.4 \\ &= \underline{0.6} \end{aligned}$$

$$\begin{aligned} P(A') = 0.4 &\Rightarrow P(A) = 1 - 0.4 = 0.6 \\ P(B') = 0.3 &\Rightarrow P(B) = 1 - 0.3 = 0.7 \end{aligned}$$

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

$$0.9 = 0.6 + 0.7 - x$$

$$x = 1.3 - 0.9 = \underline{0.4}$$

Q) If A and B are any two events such that $P(\bar{A}) = 0.4$, $P(\bar{B}) = 0.3$, $P(A \cup B) = 0.9$, then what is the value of $P(\bar{A} \cup \bar{B})$ equal to ?

(a) 0.2

(b) 0.5

(c) 0.6

(d) 0.7

Ans: (c)

Q) If A and B are independent events such that

$P(A) = \frac{1}{5}, P(A \cup B) = \frac{7}{10}$, then what is $P(\bar{B})$ equal to?

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

$$\frac{7}{10} = \frac{1}{5} + P(B) - \frac{1}{5}P(B)$$

$$\frac{7-2}{10} = \frac{4}{5}P(B)$$

$$P(B) = \frac{1}{2} \times \frac{5}{4} = \frac{5}{8}$$

$$P(B') = 1 - \frac{5}{8} = \frac{3}{8}$$

(a) $\frac{2}{7}$

(b) $\frac{3}{7}$

(c) $\frac{3}{8}$

(d) $\frac{7}{9}$

$$P(A \cap B) = P(A) \cdot P(B)$$

if A & B are independent events

$$P(A \cap B) = \frac{1}{5}P(B)$$

Q) If A and B are independent events such that

$$P(A) = \frac{1}{5}, P(A \cup B) = \frac{7}{10}, \text{ then what is } P(\bar{B}) \text{ equal to ?}$$

(a) $\frac{2}{7}$

(b) $\frac{3}{7}$

(c) $\frac{3}{8}$

(d) $\frac{7}{9}$

Ans: (c)

Q) In a binomial distribution, the occurrence and the non-occurrence of an event are equally likely and the mean is 6. The number of trials required is

(a) 15

~~(b) 12~~

(c) 10

(d) 6

 n

$$p = q$$

$$np = 6$$

$$p + q = 1$$

$$n \left(\frac{1}{2} \right) = 6$$

$$p = q = \frac{1}{2}$$

$$n = 12$$

Q) In a binomial distribution, the occurrence and the non-occurrence of an event are equally likely and the mean is 6. The number of trials required is

- | | |
|--------|--------|
| (a) 15 | (b) 12 |
| (c) 10 | (d) 6 |

Ans: (b)

Q) What is the probability that there are 5 Mondays in the month of February 2016 ?

(a) 0

(b) $\frac{1}{7}$

(c) $\frac{2}{7}$

(d) None of these

2016 → leap year (divisible by 4)

29 days in Feb / 28 days — 4 Mondays

1 extra day —

M	Fri
T	S
W	Sun
Th	

 → $\left(\frac{1}{7}\right)$

Q) What is the propability that there are 5 Mondays in the month of February 2016 ?

(a) 0

(b) $\frac{1}{7}$

(c) $\frac{2}{7}$

(d) None of these

Ans: (b)

Q) Suppose A and B are two events. Event B has occurred and it is known that $P(B) < 1$. What is $P(A|B^c)$ equal to ?

(a) $\frac{P(A) - P(B)}{1 - P(B)}$

(b) $\frac{P(A) - P(AB)}{1 - P(B)}$

(c) $\frac{P(A) + P(B^c)}{1 - P(B)}$

(d) None of these

$$P(A/B') = \frac{P(A \cap B')}{P(B')} = \frac{P(A) - P(A \cap B)}{1 - P(B)} = \frac{P(A) - P(AB)}{1 - P(B)}$$

Q) Suppose A and B are two events. Event B has occurred and it is known that $P(B) < 1$. What is $P(A|B^c)$ equal to ?

(a) $\frac{P(A) - P(B)}{1 - P(B)}$

(b) $\frac{P(A) - P(AB)}{1 - P(B)}$

(c) $\frac{P(A) + P(B^c)}{1 - P(B)}$

(d) None of these

Ans: (b)

Q) For two events A and B ,

let $P(A) = \frac{1}{2}$, $P(A \cup B) = \frac{2}{3}$ and $P(A \cap B) = \frac{1}{6}$. What is

$P(\bar{A} \cap B)$ equal to?

(a) $\frac{1}{6}$

(b) $\frac{1}{4}$

(c) $\frac{1}{3}$

(d) $\frac{1}{2}$

$$\underline{P(B)} - P(A \cap B) = P(A' \cap B)$$

$$\frac{1}{3} - \frac{1}{6} = P(A' \cap B)$$

$$= \frac{2-1}{6} = \left(\frac{1}{6}\right)$$

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

$$\frac{2}{3} = \frac{1}{2} + x - \frac{1}{6}$$

$$x = \frac{2}{3} - \frac{1}{3} = \frac{1}{3}$$

$$P(B) = \frac{1}{3}$$

Q) For two events A and B ,

let $P(A) = \frac{1}{2}$, $P(A \cup B) = \frac{2}{3}$ and $P(A \cap B) = \frac{1}{6}$. What is

$P(\bar{A} \cap B)$ equal to?

(a) $\frac{1}{6}$

(b) $\frac{1}{4}$

(c) $\frac{1}{3}$

(d) $\frac{1}{2}$

Ans: (a)

Q) From past experience it is known that an investor will invest in security A with a probability of 0.6, will invest in security B with a probability 0.3 and will invest in both A and B with a probability of 0.2. What is the probability that an investor will invest neither in A nor in B?

- (a) 0.7
(c) 0.3

- (b) 0.28
(d) 0.4

$$P(A \cup B)' = 1 - P(A \cup B)$$

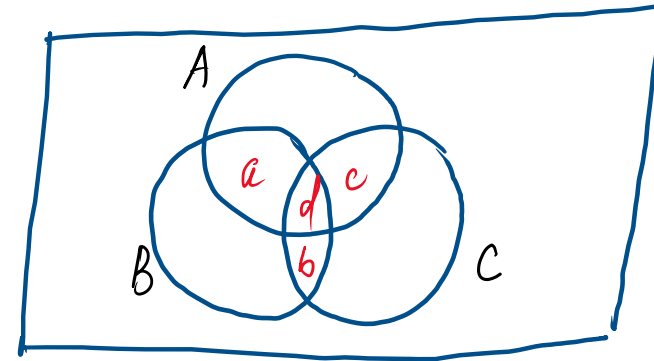
$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

Q) From past experience it is known that an investor will invest in security A with a probability of 0.6, will invest in security B with a probability 0.3 and will invest in both A and B with a probability of 0.2. What is the probability that an investor will invest neither in A nor in B ?

- | | |
|---------|----------|
| (a) 0.7 | (b) 0.28 |
| (c) 0.3 | (d) 0.4 |

Ans: (c)

Q) If A, B and C are three events, then what is the probability that atleast two of these events occur together?



(a) $P(A \cap B) + P(B \cap C) + P(C \cap A)$

(b) $P(A \cap B) + P(B \cap C) + P(C \cap A) - P(A \cap B \cap C)$

(c) $P(A \cap B) + P(B \cap C) + P(C \cap A) - 2P(A \cap B \cap C)$

(d) $P(A \cap B) + P(B \cap C) + P(C \cap A) - 3P(A \cap B \cap C)$

two events + 3 events
 $a + b + c + d$

$$P(A \cap B) + P(B \cap C) + P(C \cap A) = a + b + c + 3d$$

(a) $(a+d) + (d+b) + (c+d) = a + b + c + 3d$ ✗

(b) $a + b + c + 3d - d = a + b + c + 2d$ ✗

(c) $a + b + c + d$

(d) $= a + b + c$

Q) If A, B and C are three events, then what is the probability that at least two of these events occur together?

(a) $P(A \cap B) + P(B \cap C) + P(C \cap A)$

(b) $P(A \cap B) + P(B \cap C) + P(C \cap A) - P(A \cap B \cap C)$

(c) $P(A \cap B) + P(B \cap C) + P(C \cap A) - 2P(A \cap B \cap C)$

(d) $P(A \cap B) + P(B \cap C) + P(C \cap A) - 3P(A \cap B \cap C)$

Ans: (c)

Q)8 coins are tossed simultaneously. The probability of getting atleast 6 heads is

(a) $\frac{7}{64}$

(b) $\frac{57}{64}$

(c) $\frac{37}{256}$

(d) $\frac{229}{256}$

Q)8 coins are tossed simultaneously. The probability of getting atleast 6 heads is

(a) $\frac{7}{64}$

(b) $\frac{57}{64}$

(c) $\frac{37}{256}$

(d) $\frac{229}{256}$

Ans: (c)

Q) What is the probability that at least two persons out of a group of three persons were born in the same month (disregard year)?

(a) $\frac{33}{144}$

(b) $\frac{17}{72}$

(c) $\frac{1}{144}$

(d) $\frac{2}{9}$

Q) What is the probability that at least two persons out of a group of three persons were born in the same month (disregard year)?

(a) $\frac{33}{144}$

(b) $\frac{17}{72}$

(c) $\frac{1}{144}$

(d) $\frac{2}{9}$

Ans: (b)

- Q)** Five sticks of length 1, 3, 5, 7 and 9 feet are given. Three of these sticks are selected at random. What is the probability that the selected sticks can form a triangle?
- (a) 0.5 (b) 0.4 (c) 0.3 (d) 0

- Q)** Five sticks of length 1, 3, 5, 7 and 9 feet are given. Three of these sticks are selected at random. What is the probability that the selected sticks can form a triangle?
- (a) 0.5 (b) 0.4 (c) 0.3 (d) 0

Ans: (c)

Q) A fair coin is tossed 100 times. What is the probability of getting tails an odd number of times?

(a) $\frac{1}{2}$

(b) $\frac{3}{8}$

(c) $\frac{1}{4}$

(d) $\frac{1}{8}$

Q) A fair coin is tossed 100 times. What is the probability of getting tails an odd number of times?

(a) $\frac{1}{2}$

(b) $\frac{3}{8}$

(c) $\frac{1}{4}$

(d) $\frac{1}{8}$

Ans: (a)

Q) One bag contains 5 white balls and 3 black balls and a second bag contains 2 white balls and 4 black balls. One ball is drawn from the first bag and placed unseen in the second bag. What is the probability that a ball now drawn from the second bag is black?

(a) $\frac{15}{56}$

(b) $\frac{35}{56}$

(c) $\frac{37}{56}$

(d) $\frac{25}{48}$

Q) One bag contains 5 white balls and 3 black balls and a second bag contains 2 white balls and 4 black balls. One ball is drawn from the first bag and placed unseen in the second bag. What is the probability that a ball now drawn from the second bag is black?

(a) $\frac{15}{56}$

(b) $\frac{35}{56}$

(c) $\frac{37}{56}$

(d) $\frac{25}{48}$

Ans: (b)

Q) Consider the following relations for two events E and F .

1. $P(E \cap F) \geq P(E) + P(F) - 1$

2. $P(E \cup F) = P(E) + P(F) + P(E \cap F)$

3. $P(E \cup F) \leq P(E) + P(F)$

Which of the above relations is/are correct?

(a) 1 only

(b) 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Q) Consider the following relations for two events E and F .

1. $P(E \cap F) \geq P(E) + P(F) - 1$

2. $P(E \cup F) = P(E) + P(F) + P(E \cap F)$

3. $P(E \cup F) \leq P(E) + P(F)$

Which of the above relations is/are correct?

(a) 1 only

(b) 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Ans: (c)

Q) If $P(A / B) < P(A)$, then which one of the following is correct?

- (a) $P(B | A) < P(B)$ (b) $P(B | A) > P(B)$
(c) $P(B | A) = P(B)$ (d) $P(B | A) > P(A)$

Q) If $P(A / B) < P(A)$, then which one of the following is correct?

- (a) $P(B | A) < P(B)$ (b) $P(B | A) > P(B)$
(c) $P(B | A) = P(B)$ (d) $P(B | A) > P(A)$

Ans: (a)

Q) If a fair die is rolled 4 times, then what is the probability that there are exactly 2 sixes?

(a) $\frac{5}{216}$

(b) $\frac{25}{216}$

(c) $\frac{125}{216}$

(d) $\frac{175}{216}$

Q) If a fair die is rolled 4 times, then what is the probability that there are exactly 2 sixes?

(a) $\frac{5}{216}$

(b) $\frac{25}{216}$

(c) $\frac{125}{216}$

(d) $\frac{175}{216}$

Ans: (b)

Q) The probability that in a random arrangement of the letters of the word 'UNIVERSITY', the two I's do not come together is

(a) $\frac{4}{5}$
(c) $\frac{1}{10}$

(b) $\frac{1}{5}$
(d) $\frac{9}{10}$

Q) The probability that in a random arrangement of the letters of the word 'UNIVERSITY', the two I's do not come together is

(a) $\frac{4}{5}$
(c) $\frac{1}{10}$

(b) $\frac{1}{5}$
(d) $\frac{9}{10}$

Ans: (a)

Q) There are 4 white and 3 black balls in a box. In another box, there are 3 white and 4 black balls. An unbiased dice is rolled. If it shows a number less than or equal to 3, then a ball is drawn from the second box, otherwise from the first box. If the ball drawn is black then the possibility that the ball was drawn from the first box is

- (a) $\frac{1}{2}$
(c) $\frac{4}{7}$

- (b) $\frac{6}{7}$
(d) $\frac{3}{7}$

Q) There are 4 white and 3 black balls in a box. In another box, there are 3 white and 4 black balls. An unbiased dice is rolled. If it shows a number less than or equal to 3, then a ball is drawn from the second box, otherwise from the first box. If the ball drawn is black then the possibility that the ball was drawn from the first box is

- (a) $1/2$
(c) $4/7$

- (b) $6/7$
(d) $3/7$

Ans: (d)

Q) Two students X and Y appeared in an examination. The probability that X will qualify the examination is 0.05 and Y will qualify the examination is 0.10. The probability that both will qualify the examination is 0.02. What is the probability that only one of them will qualify the examination ?

(a) 0.15
(c) 0.12

(b) 0.14
(d) 0.11

Q) Two students X and Y appeared in an examination. The probability that X will qualify the examination is 0.05 and Y will qualify the examination is 0.10. The probability that both will qualify the examination is 0.02. What is the probability that only one of them will qualify the examination ?

- | | |
|----------|----------|
| (a) 0.15 | (b) 0.14 |
| (c) 0.12 | (d) 0.11 |

Ans: (d)

Q) The probability that a ship safely reaches a port is $\frac{1}{3}$. The

probability that out of 5 ships, at least 4 ships would arrive safely is

- (a) $\frac{1}{243}$ (b) $\frac{10}{243}$ (c) $\frac{11}{243}$ (d) $\frac{13}{243}$

Q) The probability that a ship safely reaches a port is $\frac{1}{3}$. The

probability that out of 5 ships, at least 4 ships would arrive safely is

- (a) $\frac{1}{243}$ (b) $\frac{10}{243}$ (c) $\frac{11}{243}$ (d) $\frac{13}{243}$

Ans: (c)

Q) If $P(B) = \frac{3}{4}$, $P(A \cap B \cap \bar{C}) = \frac{1}{3}$ and $P(\bar{A} \cap B \cap \bar{C}) = \frac{1}{3}$,

then what is $P(B \cap C)$ equal to?

(a) $\frac{1}{12}$

(b) $\frac{3}{4}$

(c) $\frac{1}{15}$

(d) $\frac{1}{9}$

Q) If $P(B) = \frac{3}{4}$, $P(A \cap B \cap \bar{C}) = \frac{1}{3}$ and $P(\bar{A} \cap B \cap \bar{C}) = \frac{1}{3}$,

then what is $P(B \cap C)$ equal to?

(a) $\frac{1}{12}$

(b) $\frac{3}{4}$

(c) $\frac{1}{15}$

(d) $\frac{1}{9}$

Ans: (a)

Q) An unbiased coin is tossed until the first head appears or until four tosses are completed, whichever happens earlier. Which of the following statements is/are correct ?

1. The probability that no head is observed is $\frac{1}{16}$.
2. The probability that the experiment ends with three tosses is $\frac{1}{8}$.

Select the correct answer using the code given below:

- | | |
|------------------|---------------------|
| (a) 1 only | (b) 2 only |
| (c) Both 1 and 2 | (d) Neither 1 nor 2 |

Q) An unbiased coin is tossed until the first head appears or until four tosses are completed, whichever happens earlier. Which of the following statements is/are correct ?

1. The probability that no head is observed is $\frac{1}{16}$.
2. The probability that the experiment ends with three tosses is $\frac{1}{8}$.

Select the correct answer using the code given below:

- | | |
|------------------|---------------------|
| (a) 1 only | (b) 2 only |
| (c) Both 1 and 2 | (d) Neither 1 nor 2 |

Ans: (c)

Q) Let two events A and B be such that $P(A) = L$ and $P(B) = M$. Which one of the following is correct?

(a) $P(A|B) < \frac{L + M - 1}{M}$

(b) $P(A|B) > \frac{L + M - 1}{M}$

(c) $P(A|B) \geq \frac{L + M - 1}{M}$

(d) $P(A|B) = \frac{L + M - 1}{M}$

Q) Let two events A and B be such that $P(A) = L$ and $P(B) = M$. Which one of the following is correct?

(a) $P(A|B) < \frac{L + M - 1}{M}$

(b) $P(A|B) > \frac{L + M - 1}{M}$

(c) $P(A|B) \geq \frac{L + M - 1}{M}$

(d) $P(A|B) = \frac{L + M - 1}{M}$

Ans: (c)

Q) A committee of two persons is selected from two men and two women. The probability that the committee will have exactly one woman is

(a) $\frac{1}{6}$

(b) $\frac{2}{3}$

(c) $\frac{1}{3}$

(d) $\frac{1}{2}$

Q) A committee of two persons is selected from two men and two women. The probability that the committee will have exactly one woman is

(a) $\frac{1}{6}$

(b) $\frac{2}{3}$

(c) $\frac{1}{3}$

(d) $\frac{1}{2}$

Ans: (b)

Q) If 5 of a Company's 10 delivery trucks do not meet emission standards and 3 of them are chosen for inspection, then what is the probability that none of the trucks chosen will meet emission standards?

(a) $\frac{1}{8}$
(c) $\frac{1}{12}$

(b) $\frac{3}{8}$
(d) $\frac{1}{4}$

Q) If 5 of a Company's 10 delivery trucks do not meet emission standards and 3 of them are chosen for inspection, then what is the probability that none of the trucks chosen will meet emission standards?

(a) $\frac{1}{8}$

(b) $\frac{3}{8}$

(c) $\frac{1}{12}$

(d) $\frac{1}{4}$

Ans: (c)

Q) Two independent events A and B have $P(A) = \frac{1}{3}$

and $P(B) = \frac{3}{4}$. What is the probability that exactly one of

the two events A or B occurs?

(a) $\frac{1}{4}$

(b) $\frac{5}{6}$

(c) $\frac{5}{12}$

(d) $\frac{7}{12}$

Q) Two independent events A and B have $P(A) = \frac{1}{3}$

and $P(B) = \frac{3}{4}$. What is the probability that exactly one of

the two events A or B occurs?

(a) $\frac{1}{4}$

(b) $\frac{5}{6}$

(c) $\frac{5}{12}$

(d) $\frac{7}{12}$

Ans: (d)

Q) There are n socks in a drawer, of which 3 socks are red. If 2 of the socks are chosen randomly and the probability that both selected socks are red is $\frac{1}{2}$, then what is the value

of n ?

- (a) 3
- (b) 4
- (c) 5
- (d) 6

Q) There are n socks in a drawer, of which 3 socks are red. If 2 of the socks are chosen randomly and the probability that both selected socks are red is $\frac{1}{2}$, then what is the value

of n ?

- (a) 3
- (b) 4
- (c) 5
- (d) 6

Ans: (b)

Q) A point is chosen at random inside a rectangle measuring 6 inches by 5 inches. What is the probability that the randomly selected point is at least one inch from the edge of the rectangle?

(a) $\frac{2}{3}$

(b) $\frac{1}{3}$

(c) $\frac{1}{4}$

(d) $\frac{2}{5}$

Q) A point is chosen at random inside a rectangle measuring 6 inches by 5 inches. What is the probability that the randomly selected point is at least one inch from the edge of the rectangle?

(a) $\frac{2}{3}$

(b) $\frac{1}{3}$

(c) $\frac{1}{4}$

(d) $\frac{2}{5}$

Ans: (d)

Q) In a series of 3 one-day cricket matches between teams A and B of a college, the probability of team A winning or drawing are $\frac{1}{3}$ and $\frac{1}{6}$ respectively. If a win, loss or draw gives 2, 0 and 1 point respectively, then what is the probability that team A will score 5 points in the series?

(a) $\frac{17}{18}$

(b) $\frac{11}{12}$

(c) $\frac{1}{12}$

(d) $\frac{1}{18}$

Q) In a series of 3 one-day cricket matches between teams A and B of a college, the probability of team A winning or drawing are $\frac{1}{3}$ and $\frac{1}{6}$ respectively. If a win, loss or draw gives 2, 0 and 1 point respectively, then what is the probability that team A will score 5 points in the series?

(a) $\frac{17}{18}$

(b) $\frac{11}{12}$

(c) $\frac{1}{12}$

(d) $\frac{1}{18}$

Ans: (d)

Q) In eight throws of a die, 5 or 6 is considered a success. The mean and standard deviation of total number of successes is respectively given by

(a) $\frac{8}{3}, \frac{16}{9}$

(b) $\frac{8}{3}, \frac{4}{3}$

(c) $\frac{4}{3}, \frac{4}{3}$

(d) $\frac{4}{3}, \frac{16}{9}$

Q) In eight throws of a die, 5 or 6 is considered a success. The mean and standard deviation of total number of successes is respectively given by

(a) $\frac{8}{3}, \frac{16}{9}$

(b) $\frac{8}{3}, \frac{4}{3}$

(c) $\frac{4}{3}, \frac{4}{3}$

(d) $\frac{4}{3}, \frac{16}{9}$

Ans: (b)

Q) If two dice are thrown and atleast one of the dice shows 5, then the probability that the sum is 10 or more is

(a) $\frac{1}{6}$

(b) $\frac{4}{11}$

(c) $\frac{3}{11}$

(d) $\frac{2}{11}$

Q) If two dice are thrown and atleast one of the dice shows 5, then the probability that the sum is 10 or more is

(a) $\frac{1}{6}$

(b) $\frac{4}{11}$

(c) $\frac{3}{11}$

(d) $\frac{2}{11}$

Ans: (c)

Q) If probability of simultaneous occurrence of two events A and B is p and the probability that exactly one of A, B occurs is q , then which of the following is/are correct?

1. $P(\bar{A}) + P(\bar{B}) = 2 - 2p - q$

2. $P(\bar{A} \cap \bar{B}) = 1 - p - q$

Select the correct answer using the code given below.

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

Q) If probability of simultaneous occurrence of two events A and B is p and the probability that exactly one of A, B occurs is q , then which of the following is/are correct?

1. $P(\bar{A}) + P(\bar{B}) = 2 - 2p - q$

2. $P(\bar{A} \cap \bar{B}) = 1 - p - q$

Select the correct answer using the code given below.

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

Ans: (c)

Q) A salesman has a 70% chance to sell a product to any customer. The behaviour of successive customers is independent. If two customers A and B enter, what is the probability that the salesman will sell the product to customer A or B?

(a) 0.98

(b) 0.91

(c) 0.70

(d) 0.49

Q) A salesman has a 70% chance to sell a product to any customer. The behaviour of successive customers is independent. If two customers A and B enter, what is the probability that the salesman will sell the product to customer A or B?

(a) 0.98

(b) 0.91

(c) 0.70

(d) 0.49

Ans: (b)

Q) In an examination, the probability of a candidate solving a question is $\frac{1}{2}$. Out of given 5 questions in the examination, what is the probability that the candidate was able to solve at least 2 questions?

(a) $\frac{1}{64}$

(b) $\frac{3}{16}$

(c) $\frac{1}{2}$

(d) $\frac{13}{16}$

Q) In an examination, the probability of a candidate solving a question is $\frac{1}{2}$. Out of given 5 questions in the examination, what is the probability that the candidate was able to solve at least 2 questions?

(a) $\frac{1}{64}$

(b) $\frac{3}{16}$

(c) $\frac{1}{2}$

(d) $\frac{13}{16}$

Ans: (b)

Q) If A and B are two events such that $P(A \cup B) = \frac{3}{4}$,

$P(A \cap B) = \frac{1}{4}$ and $P(\bar{A}) = \frac{2}{3}$, then what is $P(B)$ equal to?

(a) $\frac{1}{3}$

(b) $\frac{2}{3}$

(c) $\frac{1}{8}$

(d) $\frac{2}{9}$

Q) If A and B are two events such that $P(A \cup B) = \frac{3}{4}$,

$P(A \cap B) = \frac{1}{4}$ and $P(\bar{A}) = \frac{2}{3}$, then what is $P(B)$ equal to?

(a) $\frac{1}{3}$

(b) $\frac{2}{3}$

(c) $\frac{1}{8}$

(d) $\frac{2}{9}$

Ans: (b)

Q) Three digits are chosen at random from 1, 2, 3, 4, 5, 6, 7, 8 and 9 without repeating any digit. What is the probability that the product is odd ?

(a) $\frac{2}{3}$

(b) $\frac{7}{48}$

(c) $\frac{5}{42}$

(d) $\frac{5}{108}$

Q) Three digits are chosen at random from 1, 2, 3, 4, 5, 6, 7, 8 and 9 without repeating any digit. What is the probability that the product is odd ?

(a) $\frac{2}{3}$

(b) $\frac{7}{48}$

(c) $\frac{5}{42}$

(d) $\frac{5}{108}$

Ans: (c)

Q) If $x \in [0, 5]$, then what is the probability that $x^2 - 3x + 2 \geq 0$?

(a) $\frac{4}{5}$

(b) $\frac{1}{5}$

(c) $\frac{2}{5}$

(d) $\frac{3}{5}$

Q) If $x \in [0, 5]$, then what is the probability that $x^2 - 3x + 2 \geq 0$?

(a) $\frac{4}{5}$

(b) $\frac{1}{5}$

(c) $\frac{2}{5}$

(d) $\frac{3}{5}$

Ans: (a)

Q) If $P(A \cup B) = \frac{5}{6}$, $P(A \cap B) = \frac{1}{3}$ and $P(\bar{A}) = \frac{1}{2}$, then which of the

following is/are correct?

1. A and B are independent events.
2. A and B are mutually exclusive events.

Select the correct answer using the code given below.

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Q) If $P(A \cup B) = \frac{5}{6}$, $P(A \cap B) = \frac{1}{3}$ and $P(\bar{A}) = \frac{1}{2}$, then which of the following is/are correct?

1. A and B are independent events.
2. A and B are mutually exclusive events.

Select the correct answer using the code given below.

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

Ans: (a)

Q) A problem is given to three students A , B and C , whose probabilities of solving the problem independently are $\frac{1}{2}$, $\frac{3}{4}$ and p , respectively. If the probability that the problem can be solved is $\frac{29}{32}$, then what is the value of p ?

(a) $\frac{2}{5}$

(b) $\frac{2}{3}$

(c) $\frac{1}{3}$

(d) $\frac{1}{4}$

Q) A problem is given to three students A , B and C , whose probabilities of solving the problem independently are $\frac{1}{2}$, $\frac{3}{4}$ and p , respectively. If the probability that the problem can be solved is $\frac{29}{32}$, then what is the value of p ?

(a) $\frac{2}{5}$

(b) $\frac{2}{3}$

(c) $\frac{1}{3}$

(d) $\frac{1}{4}$

Ans: (d)

Q) In an examination, the probability of a candidate solving a question is $\frac{1}{2}$. Out of given 5 questions in the examination, what is the probability that the candidate was able to solve at least 2 questions?

(a) $\frac{1}{64}$

(b) $\frac{3}{16}$

(c) $\frac{1}{2}$

(d) $\frac{13}{16}$

Q) In an examination, the probability of a candidate solving a question is $\frac{1}{2}$. Out of given 5 questions in the examination, what is the probability that the candidate was able to solve at least 2 questions?

(a) $\frac{1}{64}$

(b) $\frac{3}{16}$

(c) $\frac{1}{2}$

(d) $\frac{13}{16}$

Ans: (d)

Q) In a multiple-choice test, an examinee either knows the correct answer with probability p , or guesses with probability $1 - p$. The probability of answering a question correctly is $\frac{1}{m}$, if he or she merely guesses. If the examinee answers a question correctly, the probability that he or she really knows the answer is

(a) $\frac{mp}{1 + mp}$

(b) $\frac{mp}{1 + (m - 1)p}$

(c) $\frac{(m - 1)p}{1 + (m - 1)p}$

(d) $\frac{(m - 1)p}{1 + mp}$

Q) In a multiple-choice test, an examinee either knows the correct answer with probability p , or guesses with probability $1 - p$. The probability of answering a question correctly is $\frac{1}{m}$, if he or she merely guesses. If the examinee answers a question correctly, the probability that he or she really knows the answer is

(a) $\frac{mp}{1 + mp}$

(b) $\frac{mp}{1 + (m - 1)p}$

(c) $\frac{(m - 1)p}{1 + (m - 1)p}$

(d) $\frac{(m - 1)p}{1 + mp}$

Ans: (b)

Q) A bag contains 20 books out of which 5 are defective. If 3 of the books are selected at random and removed from the bag in succession without replacement, then what is the probability that all three books are defective?

- (a) 0.009 (b) 0.016
(c) 0.026 (d) 0.047

Q) A bag contains 20 books out of which 5 are defective. If 3 of the books are selected at random and removed from the bag in succession without replacement, then what is the probability that all three books are defective?

- (a) 0.009 (b) 0.016
(c) 0.026 (d) 0.047

Ans: (a)

Q) There are 3 coins in a box. One is a two-headed coin; another is a fair coin; and third is biased coin that comes up heads 75% of time. When one of the three coins is selected at random and flipped, it shows heads. What is the probability that it was the two-headed coin?

(a) $\frac{2}{9}$

(b) $\frac{1}{3}$

(c) $\frac{4}{9}$

(d) $\frac{5}{9}$

Q) There are 3 coins in a box. One is a two-headed coin; another is a fair coin; and third is biased coin that comes up heads 75% of time. When one of the three coins is selected at random and flipped, it shows heads. What is the probability that it was the two-headed coin?

(a) $\frac{2}{9}$

(b) $\frac{1}{3}$

(c) $\frac{4}{9}$

(d) $\frac{5}{9}$

Ans: (c)

Q) If A and B are two events such that

$$P(A) = 0.5, P(B) = 0.6 \text{ and}$$

$$P(\underline{A \cap B}) = 0.4, \text{ then what is}$$

$$P(A \cup B) \text{ equal to ?}$$

(a) 0.9

(b) 0.7

(c) 0.5

(d) 0.3

Q) If A and B are two events such that
 $P(A) = 0.5$, $P(B) = 0.6$ and
 $P(\underline{A \cap B}) = 0.4$, then what is
 $P(A \cup B)$ equal to ?

(a) 0.9

(b) 0.7

(c) 0.5

(d) 0.3

Ans: (d)

Q) If A and B are two events such that

$$P(\text{not } A) = \frac{7}{10}, P(\text{not } B) = \frac{3}{10} \text{ and}$$

$$P(A | B) = \frac{3}{14}, \text{ then what is } P(B | A)$$

equal to?

(a) $\frac{11}{14}$

(b) $\frac{9}{14}$

(c) $\frac{1}{4}$

(d) $\frac{1}{2}$

Q) If A and B are two events such that

$$P(\text{not } A) = \frac{7}{10}, P(\text{not } B) = \frac{3}{10} \text{ and}$$

$$P(A | B) = \frac{3}{14}, \text{ then what is } P(B | A)$$

equal to?

(a) $\frac{11}{14}$

(b) $\frac{9}{14}$

(c) $\frac{1}{4}$

(d) $\frac{1}{2}$

Ans: (d)

Q) If two fair dice are rolled, then what is the conditional probability that the first dice lands on 6, given that the sum of numbers on the dice is 8?

(a) $\frac{1}{3}$

(b) $\frac{1}{4}$

(c) $\frac{1}{5}$

(d) $\frac{1}{6}$

Q) If two fair dice are rolled, then what is the conditional probability that the first dice lands on 6, given that the sum of numbers on the dice is 8?

(a) $\frac{1}{3}$

(b) $\frac{1}{4}$

(c) $\frac{1}{5}$

(d) $\frac{1}{6}$

Ans: (c)

Q) A and B are two events such that \bar{A} and \bar{B} are mutually exclusive. If $P(A) = 0.5$ and $P(B) = 0.6$, then what is the value of $P(A/B)$?

(a) $\frac{1}{5}$

(b) $\frac{1}{6}$

(c) $\frac{2}{5}$

(d) $\frac{1}{3}$

Q) A and B are two events such that \bar{A} and \bar{B} are mutually exclusive. If $P(A) = 0.5$ and $P(B) = 0.6$, then what is the value of $P(A/B)$?

(a) $\frac{1}{5}$

(b) $\frac{1}{6}$

(c) $\frac{2}{5}$

(d) $\frac{1}{3}$

Ans: (b)

Q) In a college, 25% of the boys and 10% of the girls offer Mathematics. The girls constitute 60% of the total number of students. If a student is selected at random and is found to be studying Mathematics. The probability that the student is a girl, is

(a) $\frac{1}{6}$

(c) $\frac{5}{8}$

(b) $\frac{3}{8}$

(d) $\frac{5}{6}$

Q) In a college, 25% of the boys and 10% of the girls offer Mathematics. The girls constitute 60% of the total number of students. If a student is selected at random and is found to be studying Mathematics. The probability that the student is a girl, is

(a) $\frac{1}{6}$

(c) $\frac{5}{8}$

(b) $\frac{3}{8}$

(d) $\frac{5}{6}$

Ans: (b)

Q) If A and B are any two events, then $P(\bar{A} \cap B)$ is equal to

- (a) $P(\bar{A})P(\bar{B})$ (b) $1 - P(A) - P(B)$
(c) $P(A) + P(B) - P(A \cap B)$ (d) $P(B) - P(A \cap B)$

Q) If A and B are any two events, then $P(\bar{A} \cap B)$ is equal to

- (a) $P(\bar{A})P(\bar{B})$ (b) $1 - P(A) - P(B)$
(c) $P(A) + P(B) - P(A \cap B)$ (d) $P(B) - P(A \cap B)$

Ans: (d)

Q) There is 25% chance that it rains on any particular day. What is the probability that there is at least one rainy day within a period of 7 days?

(a) $1 - \left(\frac{1}{4}\right)^7$

(b) $\left(\frac{1}{4}\right)^7$

(c) $\left(\frac{3}{4}\right)^7$

(d) $1 - \left(\frac{3}{4}\right)^7$

Q) There is 25% chance that it rains on any particular day. What is the probability that there is at least one rainy day within a period of 7 days?

(a) $1 - \left(\frac{1}{4}\right)^7$

(b) $\left(\frac{1}{4}\right)^7$

(c) $\left(\frac{3}{4}\right)^7$

(d) $1 - \left(\frac{3}{4}\right)^7$

Ans: (d)

Q) A salesman has a 70% chance to sell a product to any customer. The behaviour of successive customers is independent. If two customers A and B enter, what is the probability that the salesman will sell the product to customer A or B?

(a) 0.98

(b) 0.91

(c) 0.70

(d) 0.49

Q) A salesman has a 70% chance to sell a product to any customer. The behaviour of successive customers is independent. If two customers A and B enter, what is the probability that the salesman will sell the product to customer A or B?

(a) 0.98

(b) 0.91

(c) 0.70

(d) 0.49

Ans: (b)

Q) For two dependent events A and B, it is given that $P(A) = 0.2$ and $P(B) = 0.5$. If $A \subseteq B$, then the values of conditional probabilities $P(A|B)$ and $P(B|A)$ are respectively

(a) $\frac{2}{5}, \frac{3}{5}$

(b) $\frac{2}{5}, 1$

(c) $1, \frac{2}{5}$

(d) Information is insufficient

Q) For two dependent events A and B, it is given that $P(A) = 0.2$ and $P(B) = 0.5$. If $A \subseteq B$, then the values of conditional probabilities $P(A|B)$ and $P(B|A)$ are respectively

(a) $\frac{2}{5}, \frac{3}{5}$

(b) $\frac{2}{5}, 1$

(c) $1, \frac{2}{5}$

(d) Information is insufficient

Ans: (b)

Q) There are n socks in a drawer, of which 3 socks are red. If 2 of the socks are chosen randomly and the probability that

both selected socks are red is $\frac{1}{2}$, then what is the value of n ?

(a) 3

(b) 4

(c) 5

(d) 6

Q) There are n socks in a drawer, of which 3 socks are red. If 2 of the socks are chosen randomly and the probability that

both selected socks are red is $\frac{1}{2}$, then what is the value of n ?

(a) 3

(b) 4

(c) 5

(d) 6

Ans: (b)

Q) In a class of 125 students 70 passed in Mathematics, 55 passed in Statistics and 30 passed in both. What is the probability that a student selected at random from the class has passed in only one subject?

- (a) $13/25$ (b) $3/25$ (c) $17/25$ (d) $8/25$

Q) In a class of 125 students 70 passed in Mathematics, 55 passed in Statistics and 30 passed in both. What is the probability that a student selected at random from the class has passed in only one subject?

- (a) $\frac{13}{25}$ (b) $\frac{3}{25}$ (c) $\frac{17}{25}$ (d) $\frac{8}{25}$

Ans: (a)

Q) What is the probability that an interior point in a circle is closer to the centre than to the circumference?

(a) $\frac{1}{4}$

(b) $\frac{1}{2}$

(c) $\frac{3}{4}$

(d) It cannot be determined

Q) What is the probability that an interior point in a circle is closer to the centre than to the circumference?

(a) $\frac{1}{4}$

(b) $\frac{1}{2}$

(c) $\frac{3}{4}$

(d) It cannot be determined

Ans: (a)

Q) What is the probability that the roots of the equation $x^2 + x + n = 0$ are real, where $n \in N$ and $n < 4$?

- (a) 0
- (b) $\frac{1}{4}$
- (c) $\frac{1}{3}$
- (d) $\frac{1}{2}$

Q) What is the probability that the roots of the equation $x^2 + x + n = 0$ are real, where $n \in N$ and $n < 4$?

- (a) 0 (b) $\frac{1}{4}$
(c) $\frac{1}{3}$ (d) $\frac{1}{2}$

Ans: (a)

Q) Let A , B and C be three mutually exclusive and exhaustive events associated with a random experiment. If $P(B) = 1.5 P(A)$ and $P(C) = 0.5 P(B)$, then $P(A)$ is equal to

(a) $\frac{3}{4}$

(b) $\frac{4}{13}$

(c) $\frac{2}{3}$

(d) $\frac{1}{2}$

Q) Let A , B and C be three mutually exclusive and exhaustive events associated with a random experiment. If $P(B) = 1.5 P(A)$ and $P(C) = 0.5 P(B)$, then $P(A)$ is equal to

(a) $\frac{3}{4}$

(b) $\frac{4}{13}$

(c) $\frac{2}{3}$

(d) $\frac{1}{2}$

Ans: (b)

Q) Two independent events A and B are such that $P(A \cup B) = \frac{2}{3}$ and $P(A \cap B) = \frac{1}{6}$. If $P(B) < P(A)$, then

what is $P(B)$ equal to ?

(a) $\frac{1}{4}$

(b) $\frac{1}{3}$

(c) $\frac{1}{2}$

(d) $\frac{1}{6}$

Q) Two independent events A and B are such that $P(A \cup B) = \frac{2}{3}$ and $P(A \cap B) = \frac{1}{6}$. If $P(B) < P(A)$, then

what is $P(B)$ equal to ?

(a) $\frac{1}{4}$

(b) $\frac{1}{3}$

(c) $\frac{1}{2}$

(d) $\frac{1}{6}$

Ans: (b)

Q) Two symmetric dice flipped with each die having two sides painted red, two painted black, one painted yellow and the other painted white. What is the probability that both land on the same colour ?

(a) $\frac{3}{18}$

(b) $\frac{2}{9}$

(c) $\frac{5}{18}$

(d) $\frac{1}{3}$

Q) Two symmetric dice flipped with each die having two sides painted red, two painted black, one painted yellow and the other painted white. What is the probability that both land on the same colour ?

(a) $\frac{3}{18}$

(b) $\frac{2}{9}$

(c) $\frac{5}{18}$

(d) $\frac{1}{3}$

Ans: (c)

Q) A fair coin is tossed four times. What is the probability that at most three tails occur ?

(a) $\frac{7}{9}$

(b) $\frac{15}{16}$

(c) $\frac{13}{16}$

(d) $\frac{3}{4}$

Q) A fair coin is tossed four times. What is the probability that at most three tails occur ?

(a) $\frac{7}{9}$

(b) $\frac{15}{16}$

(c) $\frac{13}{16}$

(d) $\frac{3}{4}$

Ans: (b)

Q) A coin is tossed twice. If E and F denote occurrence of head on first toss and second toss respectively, then what is $P(E \cup F)$ equal to?

(a) $\frac{1}{4}$

(b) $\frac{1}{2}$

(c) $\frac{3}{4}$

(d) $\frac{1}{3}$

Q) A coin is tossed twice. If E and F denote occurrence of head on first toss and second toss respectively, then what is $P(E \cup F)$ equal to?

(a) $\frac{1}{4}$

(b) $\frac{1}{2}$

(c) $\frac{3}{4}$

(d) $\frac{1}{3}$

Ans: (c)

Q) An experiment consists of flipping a coin and then flipping it a second time if head occurs. If a tail occurs on the first flip, then a six-faced die is tossed once. Assuming that the outcomes are equally likely, what is the probability of getting one head and one tail?

(a) $1/4$

(b) $1/36$

(c) $1/6$

(d) $1/8$

Q) An experiment consists of flipping a coin and then flipping it a second time if head occurs. If a tail occurs on the first flip, then a six-faced die is tossed once. Assuming that the outcomes are equally likely, what is the probability of getting one head and one tail?

(a) $\frac{1}{4}$

(b) $\frac{1}{36}$

(c) $\frac{1}{6}$

(d) $\frac{1}{8}$

Ans: (d)

Q) Consider the following statements :

If A and B are independent events, then

1. A and \bar{B} are independent.

2. \bar{A} and B are independent.

3. \bar{A} and \bar{B} are independent.

Which of the above statements is/are correct?

(a) 3 only

(b) 1 and 2 only

(c) 1,2 and 3

(d) None of these

Q) Consider the following statements :

If A and B are independent events, then

1. A and \bar{B} are independent.

2. \bar{A} and B are independent.

3. \bar{A} and \bar{B} are independent.

Which of the above statements is/are correct?

(a) 3 only

(b) 1 and 2 only

(c) 1,2 and 3

(d) None of these

Ans: (c)

Q) Consider the following statements :

1. If A and B are exhaustive events, then their union is the sample space.
2. If A and B are exhaustive events, then their intersection must be an empty event.

Which of the above statements is/are correct ?

- | | |
|------------------|---------------------|
| (a) 1 only | (b) 2 only |
| (c) Both 1 and 2 | (d) Neither 1 nor 2 |

Q) Consider the following statements :

1. If A and B are exhaustive events, then their union is the sample space.
2. If A and B are exhaustive events, then their intersection must be an empty event.

Which of the above statements is/are correct ?

- | | |
|------------------|---------------------|
| (a) 1 only | (b) 2 only |
| (c) Both 1 and 2 | (d) Neither 1 nor 2 |

Ans: (b)

Q) Two dice are thrown simultaneously. What is the probability that the sum of the numbers appearing on them is a prime number?

(a) $\frac{5}{12}$

(b) $\frac{1}{2}$

(c) $\frac{7}{12}$

(d) $\frac{2}{3}$

Q) Two dice are thrown simultaneously. What is the probability that the sum of the numbers appearing on them is a prime number?

(a) $\frac{5}{12}$

(b) $\frac{1}{2}$

(c) $\frac{7}{12}$

(d) $\frac{2}{3}$

Ans: (a)

Q) The probability that atleast one of the events A and B occurs is $3/5$. If A and B occur simultaneously with probability $1/5$, then $P(A') + P(B')$ is

(a) $\frac{2}{5}$

(b) $\frac{4}{5}$

(c) $\frac{6}{5}$

(d) $\frac{7}{5}$

Q) The probability that atleast one of the events A and B occurs is $3/5$. If A and B occur simultaneously with probability $1/5$, then $P(A') + P(B')$ is

(a) $\frac{2}{5}$
(c) $\frac{6}{5}$

(b) $\frac{4}{5}$
(d) $\frac{7}{5}$

Ans: (c)

Q) If three natural numbers from 1 to 100 are selected randomly, then probability that all are divisible by both 2 and 3, is

(a) $\frac{4}{105}$

(b) $\frac{4}{33}$

(c) $\frac{4}{35}$

(d) $\frac{4}{1155}$

Q) If three natural numbers from 1 to 100 are selected randomly, then probability that all are divisible by both 2 and 3, is

(a) $\frac{4}{105}$

(b) $\frac{4}{33}$

(c) $\frac{4}{35}$

(d) $\frac{4}{1155}$

Ans: (d)

NDA 2 2024

LIVE

MATHS

STATISTICS

CLASS 1

NAVJYOTI SIR

SSBCrack
EXAMS

Crack
EXAMS