



MATHS

BOOKS - MTG WBJEE MATHS (HINGLISH)

STATISTICS AND PROBABILITY

**Wb Jee Workout Category 1 Single Option
Correct Type 1 Mark**

1. If A and B are two independent events, the probability that both A and B occurs is $\frac{1}{12}$ and probability that neither A nor B occurs is $\frac{1}{2}$ then

A. $P(A) = 1/3, P(B) = 1/4$

B. $P(A) = 1/2, P(B) = 1/6$

C. $P(A) = 1/6, P(B) = 1/2$

D. $P(A) = 1/4, P(B) = 1/2$

Answer: A



Watch Video Solution

2. Two squares are chosen from a chess board. The probability that they are of different colour is

A. $\frac{63}{64}$

B. $\frac{32}{63}$

C. $\frac{23}{64}$

D. None of these

Answer: B





3. For two data sets, each of size 5, the variances are given to be 4 and 5 and the corresponding means are given to be 2 and 4, respectively. The variance of the combined data set is (1) $\frac{11}{2}$ (2) 2 (3) $\frac{13}{2}$ (4) $\frac{5}{2}$

A. $\frac{11}{2}$

B. 6

C. $\frac{13}{2}$

D. $\frac{5}{2}$

Answer: A



Watch Video Solution

4. The probability that Ram will be alive 30 years hence is $\frac{7}{11}$ and Shyam will be alive is $\frac{7}{10}$. What is the probability that both Ram and Shyam will be dead 30 years hence ?

A. $\frac{1}{11}$

B. $\frac{12}{110}$

C. $\frac{12}{121}$

D. None of these

Answer: C



Watch Video Solution

5. Two cards are drawn from a deck of cards.

The probability that both are of same suit is

A. $\frac{1}{2}$

B. $\frac{1}{13}$

C. $\frac{4}{17}$

D. None of these

Answer: C



Watch Video Solution

6. The mean age of a combined group of men and women is 25 years. If the mean age of the group of men is 26 and that of the group of women is 21, then the percentage of men and women respectively in the group is

A. 46, 60

B. 80, 20

C. 20, 80

D. 60, 40

Answer: B



Watch Video Solution

7. Out of $(2n+1)$ tickets consecutively numbered, three are drawn at random. Find the chance that the numbers on them are in AP.

A. $\frac{3n}{4n^2 - 1}$

B. $\frac{2n}{4n^2 - 1}$

C. $\frac{n}{4n^2 - 1}$

D. None of these

Answer: A



Watch Video Solution

8. A and B are two independent events such that $P(A \cup B') = 0.8$ and $P(A) = 0.3$. Then $P(B)$ is

A. $\frac{2}{7}$

B. $\frac{2}{3}$

C. $\frac{3}{8}$

D. $\frac{1}{8}$

Answer: A



Watch Video Solution

9. The mean deviation about the mean for the values

18, 20, 12, 14, 19, 22, 26, 16, 19, 24 is

A. 3.1

B. 3.4

C. 3.2

D. 3.3

Answer: C



Watch Video Solution

10. A drawer contains 4 green and 5 white socks well mixed. A man after reaching the

drawer pulls 2 socks at random . The probability that they are of same colour is

A. $\frac{5}{7}$

B. $\frac{7}{15}$

C. $\frac{5}{9}$

D. $\frac{4}{9}$

Answer: D



Watch Video Solution

11. A mapping is selected at random from set $A = \{1, 2, \dots, 10\}$ into itself. The probability that mapping selected is an injective is

A. $\frac{10}{10^9}$

B. $\frac{9!}{10^9}$

C. $\frac{9}{10!}$

D. None of these

Answer: B



Watch Video Solution

12. Three numbers are chosen at random from 1 to 15. The probability that they are consecutive is

A. $\frac{1}{190}$

B. $\frac{1}{120}$

C. $\frac{1}{35}$

D. $\frac{5}{75}$

Answer: C



Watch Video Solution

13. A coin is tossed n times. The probability that head will turn up an even number of times is

A. $\frac{n + 1}{2n}$

B. $\frac{n}{n + 1}$

C. $\frac{1}{2}$

D. 2^{n-1}

Answer: C



Watch Video Solution

14. The mean of a binomial distribution is 15 and standard deviation is 5, then which one of the following is correct ?

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

B. $q = \frac{5}{3}$

C. data's are absolutely correct

D. data's are absolutely wrong

Answer: D



Watch Video Solution

15. The probability that in a random arrangement of the letter of the word "FAVOURABLE" the two 'A' do not come together is

A. $\frac{1}{5}$

B. $\frac{1}{10}$

C. $\frac{9}{10}$

D. $\frac{4}{5}$

Answer: D



Watch Video Solution

16. The standard deviation of 25 numbers is 40. If each of the numbers is increased by 5, then the new standard deviation will be -

A. 40

B. 25

C. $\sqrt{4}$

D. 1600

Answer: A



17. A single letter is selected at random from the word "PROBABILITY" . The probability that it is a vowel is

A. $\frac{1}{11}$

B. $\frac{4}{11}$

C. $\frac{3}{11}$

D. None of these

Answer: B



Watch Video Solution

18. Two cards are drawn from a pack of 52 cards. The probability that one card is an ace and other is queen is

A. $\frac{{}^4C_2}{{}^{52}C_2}$

B. $\frac{2}{{}^{52}C_2}$

C. $\frac{1}{663}$

D. $\frac{8}{663}$

Answer: D



Watch Video Solution

19.

If

$$\sum_{i=1}^9 (x_i - 5) = 9 \text{ and } \sum_{i=1}^9 (x_i - 5)^2 = 45$$

then the standard deviation of the 9 items

x_1, x_2, \dots, x_9 is

A. 9

B. 4

C. 3

D. 2

Answer: D



Watch Video Solution

20. The standard deviation of the first n natural numbers is

A. $\frac{\sqrt{n^2 + 1}}{12}$

B. $\frac{n^2 - 1}{12}$

C. $\sqrt{\frac{n^2 - 1}{12}}$

D. $\frac{n^2 + 1}{12}$

Answer: C



Watch Video Solution

21. If the coefficient of variation of a distribution is 45% and the mean is 12, then its standard deviation is

A. 5.2

B. 5.3

C. 5.4

D. none of these

Answer: C



Watch Video Solution

22. A unbiased coin is tossed n times. If the probability of getting 5 heads is equal to the probability of getting 6 heads then probability of getting 3 heads is

A. ${}^{11}C_5 \left(\frac{1}{2}\right)^5$

B. ${}^{11}C_6 \left(\frac{1}{2}\right)^6$

C. ${}^{11}C_3 \left(\frac{1}{2}\right)^{11}$

D. $\frac{11}{1024}$

Answer: C



Watch Video Solution

23. The probability that at least one of A and B occurs is 0.8. If A and B occur simultaneously with probability 0.1, then $P(A') + P(B')$ is

A. 0.9

B. 0.15

C. 1.1

D. 1.2

Answer: C



Watch Video Solution

24. All the students of a class performed poorly in Mathematics. The teacher decided to give grace marks of 10 to each of the students. Which of the following statistical measures will not change even after the grace marks

were given ? (1) median (2) mode (3) variance
(4) mean

A. median

B. mode

C. variance

D. mean

Answer: C



Watch Video Solution

25. 3 mangoes and 3 apples are in a box. If 2 fruits are chosen at random, the probability that one is a mango and the other is an apple, is

A. $\frac{2}{5}$

B. $\frac{5}{6}$

C. $\frac{3}{36}$

D. $\frac{3}{5}$

Answer: D



Watch Video Solution

26. Two coins are available, one fair and the other two-headed. Choose a coin and toss it once; assume that the unbiased coin is chosen with probability $\frac{3}{4}$. Given that the outcome is head the probability that the two-headed coin was chosen, is

A. $\frac{3}{5}$

B. $\frac{2}{5}$

C. $\frac{1}{5}$

D. $\frac{2}{7}$

Answer: B



Watch Video Solution

27. A crime is committed by one of two suspects, A and B. Initially, there is equal evidence against both of them. In further investigation at the crime scene, it is found that the guilty party had a blood type found in 20% of the population. If the suspect A does

match this blood type , whereas the blood type of suspect B is unknown, then the probability that A is guilty party =

A. $\frac{3}{5}$

B. $\frac{5}{6}$

C. $\frac{1}{3}$

D. $\frac{2}{3}$

Answer: B



View Text Solution

28. If the quartile deviation is 1.79 and the first quartile is 5.86. Find the third quartile.

A. 9.44

B. 7.46

C. 6

D. 4.99

Answer: A



Watch Video Solution

29. Four identical dice are thrown. The probability that same number will appear on each of the die is

A. $\frac{1}{18}$

B. $\frac{1}{36}$

C. $\frac{1}{216}$

D. $\frac{5}{36}$

Answer: B



Watch Video Solution

30. Coefficient of variation of two distributions are 60% and 70% and their standard deviations are 21 and 16 respectively. What are their arithmetic means?

A. 22.86, 35

B. 22, 35

C. 35, 22.86

D. 33, 25

Answer: C



Watch Video Solution

31. If two events A and B are such that

$$P(A^C) = 0.2, P(B) = 0.3 \quad \text{and}$$

$$P(A \cap B^C) = 0.4, \quad \text{then} \quad P\left(\frac{B}{A \cup B^C}\right)$$

equals

A. $\frac{1}{11}$

B. $\frac{4}{11}$

C. $\frac{1}{4}$

D. None of these

Answer: B



Watch Video Solution

**Wb Jee Workout Category 2 Single Option
Correct Type 2 Marks**

1. If the standard deviation of a variable $\xi s\sigma$,
then standard deviation of variable $\frac{aX + b}{c}$ is

$a\sigma$ (b) $\frac{a}{c}\sigma$ (c) $\left|\frac{a}{c}\right|\sigma$ (d) $\frac{a\sigma + b}{c}$

A. $a\sigma$

B. $\frac{a}{c}\sigma$

C. $\left|\frac{a}{c}\right|\sigma$

D. $\frac{a\sigma + b}{c}$

Answer: C



Watch Video Solution

2. Find the mean deviation about the mean for the following data : 6, 7, 10, 12, 13, 4, 8, 12.

A. 3.76

B. 2

C. 2.75

D. 2.55

Answer: C



Watch Video Solution

3. A die is thrown six times, the chance that exactly 3 times an odd number turn up is

A. $\frac{1}{16}$

B. $\frac{3}{16}$

C. $\frac{5}{16}$

D. None of these

Answer: C



Watch Video Solution

4. A binary operation is chosen at random from the set of all binary operations on a set A containing n elements. The probability that the binary operation is commutative, is

A. $\frac{1}{12^6}$

B. $\frac{1}{12^{12}}$

C. $\frac{1}{12^{66}}$

D. None of these

Answer: C



Watch Video Solution

5. If 10 coins of Rs. 10, five coins of Rs. 5 are to be placed in a line, then the probability that the extreme coins are of Rs. 5 is

A. $\frac{1}{15!}$

B. $\frac{1}{10!}$

C. $\frac{5!10!}{15!}$

D. None of these

Answer: D



Watch Video Solution

6. A bag A contains 3 white and 2 black balls and another bag B contains 2 white and 4 black balls. From a bag a ball is picked at

random. The probability that the ball is black,
is

A. $\frac{2}{7}$

B. $\frac{7}{9}$

C. $\frac{4}{15}$

D. $\frac{8}{15}$

Answer: D



Watch Video Solution

7. Six coins are tossed simultaneously. The probability that at least one tail turns up is

A. $\frac{63}{64}$

B. $\frac{1}{64}$

C. $\frac{3}{32}$

D. None of these

Answer: A



Watch Video Solution

8. The mean and standard deviation of 20 observations are found to be 10 and 2 respectively. On rechecking, it was found that an observation 8 was incorrect. Find the new standard deviation if wrong item is omitted.

A. 1.99

B. 2.76

C. 2.99

D. 3.46

Answer: A





9. The probability that a man can hit a target is $\frac{3}{4}$. He tries 5 times the probability that he will hit the target at most one time is

A. $\left(\frac{1}{4}\right)^3$

B. $\left(\frac{3}{4}\right)^5$

C. $\left(\frac{1}{4}\right)^2 \left(\frac{3}{4}\right)^3$

D. None of these

Answer: A



[View Text Solution](#)

10. If two events A and B are such that

$$P(A^C) = 0.3, P(B) = 0.4 \quad \text{and}$$

$$P(A \cap B^C) = 0.5 \text{ then } P(B / A \cup B^C) \text{ is}$$

A. 0.9

B. 0.25

C. 0.5

D. 0.8

Answer: B



Watch Video Solution

11. A letter is taken out at random from 'ASSISTANT' and another letter taken out from the letters of the word 'STATISTICS'. The probability that they are identical letters, is

A. $\frac{13}{90}$

B. $\frac{1}{45}$

C. $\frac{19}{90}$

D. None of these

Answer: C



Watch Video Solution

12. The sum of the squares of deviation of 10 observations from their mean 50 is 250, then coefficient of variation is

A. 10

B. 40

C. 50

D. None of these

Answer: A



Watch Video Solution

13. A person draws out two balls successively from a bag containing 6 red and 4 white balls. The probability that at least one of them will be white is

A. $\frac{2}{3}$

B. $\frac{3}{9}$

C. $\frac{48}{90}$

D. $\frac{12}{90}$

Answer: A



Watch Video Solution

14. Each of m urns consisting 6 red and 8 black balls. The $(m + 1)^{th}$ urn consisting 7 red and 7 black balls. One of the $(m + 1)$ urns is selected randomly and two balls are drawn from it without replacement and found to be black. If the probability that $(m + 1)^{th}$ urn

was selected to draw the ball is $\frac{1}{17}$, then the value of m equal to

A. 16

B. 15

C. 12

D. 10

Answer: C



View Text Solution

Wb Jee Workout Category 3 One Or More Than One Option Correct Type 2 Marks

1. A fair coin is tossed 99 times. If X is the number of times tail occurs, then $P(X = r)$ is maximum where r is given by

A. 49

B. 51

C. 50

D. None of these

Answer: A::C



View Text Solution

2. From the set $\{1, 2, 3, \dots, 13\}$, two numbers x, y are drawn one-by-one with replacement. The probability $x^2 - y^2$ shall be divisible by 3 is

A. $\frac{96}{169}$

B. $\frac{100}{169}$

C. $\frac{97}{169}$

D. None of these

Answer: C



View Text Solution

3. If A and B are two events such that

$$P(A) = \frac{3}{4} \text{ and } P(B) = \frac{5}{8}, \text{ then}$$

A. $P(A \cup B) \geq \frac{3}{4}$

B. $P(A' \cap B) \leq \frac{1}{4}$

C. $\frac{3}{8} \leq P(A \cap B) \leq \frac{5}{8}$

D. none of these

Answer: A::B::C



View Text Solution

4. The sum and sum of squares corresponding to length x (in cm) and weight y (in gm) of 50 plant products are given below :

$$\sum_{i=1}^{50} x_i = 212, \quad \sum_{i=1}^{50} x_i^2 = 902.8,$$

$$\sum_{i=1}^{50} y_i = 261, \quad \sum_{i=1}^{50} y_i^2 = 1457.6$$

If $C.V._x$ and $C.V._y$ are the coefficient of

variation of length and weight respectively,
then variability in weight is

- A. greater than variability of length
- B. less than variability of length
- C. equal to variability of length
- D. data inadequate.

Answer: A



View Text Solution

5. The probability that a candidate selected in competitive examinations of B.S.F., C.D.S., Bank P.O. and a, b and c respectively. Of these examinations, a candidate has 70% chance of selection in at least one, 50% chance of selection in at least two and 30% chance of selection in exactly two examinations. If $a + b + c = \frac{l}{m}$, then find $l + m$ if LCM $(m) = 1$.

A. $1/5$

B. 12

C. $1/2$

D. 5

Answer: B



Watch Video Solution

6. If $0 < P(A) < 1, 0 < P(B) < 1$ and

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

then

A. $P(B/A) = P(B) - P(A)$

$$B. P(A' - B') = P(A') - P(B')$$

$$C. P(A \cup B)' = P(A')P(B')$$

$$D. P(A/B) = P(A)$$

Answer: C::D



Watch Video Solution

7. Let r be the range of n ($\forall n \geq 1$)

observations x_1, x_2, \dots, x_n . If

$$S = \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n - 1}}, \text{ then}$$

$$\text{A. } S < r \sqrt{\frac{n^2 + 1}{n - 1}}$$

$$\text{B. } S \geq r \sqrt{\frac{n}{n - 1}}$$

$$\text{C. } S = r \sqrt{\frac{n}{n - 1}}$$

$$\text{D. } S < r \sqrt{\frac{n}{n - 1}}$$

Answer: D



View Text Solution

8. The chance of an event happening is the square of the chance of a second event but

the odds against the first are the cube of the odds against the second. The chances of the events are

A. $p_1 = \frac{1}{9}$

B. $p_1 = \frac{1}{16}$

C. $p_2 = \frac{1}{3}$

D. $p_2 = \frac{1}{4}$

Answer: A::C



Watch Video Solution

9. Let E and F be two independent events. The probability that exactly one of them occurs is $11/25$ and the probability if none of them occurring is $2/25$. If $P(T)$ denotes the probability of occurrence of the event T , then

$$P(E) = \frac{4}{5}, P(F) = \frac{3}{5}$$

$$P(E) = \frac{1}{5}, P(F) = \frac{2}{5}$$

$$P(E) = \frac{2}{5}, P(F) = \frac{1}{5}$$

$$P(E) = \frac{3}{5}, P(F) = \frac{4}{5}$$

A. $P(E) = \frac{4}{5}, P(F) = \frac{3}{5}$

B. $P(E) = \frac{1}{5}, P(F) = \frac{2}{5}$

$$C. P(E) = \frac{2}{5}, P(F) = \frac{1}{5}$$

$$D. P(E) = \frac{3}{5}, P(F) = \frac{4}{5}$$

Answer: A::D



Watch Video Solution

10. An electric component manufactured by '*RASU* electronics' is tested for its defectiveness by asophisticated testing device. Let A denote the event the device is defective and B the event the testing device reveals the

component to be defective. Suppose

$$P\left(\frac{B}{A}\right) = \alpha \text{ and } P\left(\frac{B'}{A'}\right) = 1 - \alpha,$$

where $0 < \alpha < 1$. If the probability that the

component is not defective is λ . then the

value of 4λ is

A. $P(B) = 2\alpha(1 - \alpha)$

B. $P(A' / B) = 1/2$

C. $P(B') = (1 - \alpha)^2 + \alpha^2$

D. $P(A' / B') = [\alpha / (1 - \alpha)]^2$

Answer: A::B::C



11. For any two events A and B in a sample space

A. $P(A/B) \geq \frac{P(A) + P(B) - 1}{P(B)}$

B. $P(A \cap \bar{B}) = P(A) - P(A \cap B)$ does not hold

C. $P(A \cup B) = 1 - P(\bar{A}) \cdot P(\bar{B})$ if A and B are independent

$$D. P(A \cup B) = 1 - P(\bar{A}) \cdot P(\bar{B}) \quad \text{if } A$$

and B are disjoint

Answer: A::C



Watch Video Solution

12. A signal which can be green or red with probability $\frac{4}{5}$ and $\frac{1}{5}$ respectively, is received

by station A and then transmitted to station B.

The probability of each station receiving the signal correctly is $\frac{3}{4}$. If the signal received at

station B is green, then the probability that original signal was green is

A. $\frac{3}{7}$

B. $\frac{6}{7}$

C. $\frac{12}{13}$

D. $\frac{9}{20}$

Answer: C



Watch Video Solution

13. The variable x takes two values x_1 and x_2 with frequencies f_1 and f_2 , respectively. If σ denotes the standard deviation of x , then

$$\text{A. } \sigma^2 = \frac{f_1 x_1^2 + f_2 x_2^2}{f_1 + f_2} - \left(\frac{f_1 x_1 + f_2 x_2}{f_1 + f_2} \right)^2$$

$$\text{B. } \sigma^2 = \frac{f_1 f_2}{(f_1 + f_2)^2} (x_1 - x_2)^2$$

$$\text{C. } \sigma^2 = \frac{(x_1 - x_2)^2}{(f_1 + f_2)^2}$$

D. none of these

Answer: A::B



Watch Video Solution

14. A coin is tossed $(2n + 1)$ times, the probability that head appear odd number of times is

A. $\frac{n}{2n + 1}$

B. $\frac{n + 1}{2n + 1}$

C. $\frac{1}{2}$

D. None of these

Answer: C



Watch Video Solution

15. Standard deviation of first n odd natural numbers is

A. \sqrt{n}

B. $\sqrt{\frac{(n+2)(n+1)}{3}}$

C. $\sqrt{\frac{n^2-1}{3}}$

D. n

Answer: C



Watch Video Solution

Wb Jee Previous Years Questions Category 1

Single Option Correct Type 1 Mark

1. Each of a and b can take values of 1 or 2 with equal probability . The probability that the equation $ax^2 + bx + 1 = 0$ has real roots, is equal to

A. $\frac{1}{2}$

B. $\frac{1}{4}$

C. $\frac{1}{8}$

D. $\frac{1}{16}$

Answer: B



Watch Video Solution

2. Cards are drawn one-by-one without replacement from a well shuffled pack of 52 cards. Then the probability that a face card (Jack, Queen or King) will appear for the first time on the third turn is equal to

A. $\frac{300}{2197}$

B. $\frac{36}{85}$

C. $\frac{12}{85}$

D. $\frac{4}{51}$

Answer: C



Watch Video Solution

3. There are two coins, one unbiased with probability $\frac{1}{2}$ of getting heads and the other one is biased with probability $\frac{3}{4}$ of getting heads. A coin is selected at random and tossed. It shows heads up. Then the

probability that the unbiased coin was selected is

A. $\frac{2}{3}$

B. $\frac{3}{5}$

C. $\frac{1}{2}$

D. $\frac{2}{5}$

Answer: D



Watch Video Solution

4. A fair six-faced die is rolled 12 times. The probability that each face turns up twice is equal to

A. $\frac{12!}{6!6!6^{12}}$

B. $\frac{2^{12}}{2^6 6^{12}}$

C. $\frac{12!}{2^6 6^{12}}$

D. $\frac{12!}{6^2 6^{12}}$

Answer: C



Watch Video Solution

5. Ram is visiting a friend. Ram knows that his friend has 2 children and 1 of them is a boy. Assuming that a child is equally likely to be a boy or a girl, then the probability that the other child is a girl is

A. $1/2$

B. $1/3$

C. $2/3$

D. $7/10$

Answer: C



Watch Video Solution

6. In a certain town, 60% of the families own a car, 30% own a house and 20% own both car and house. If a family is randomly chosen, then what is the probability that this family owns a car or a house but not both?

A. 0.5

B. 0.7

C. 0.1

D. 0.9

Answer: A



Watch Video Solution

7. The variance for first 20 natural numbers is

A. $133 / 4$

B. $279 / 12$

C. $133 / 2$

D. $399 / 4$

Answer: A



Watch Video Solution

8. A fair coin is tossed at a fixed number of times. If the probability of getting exactly 3 heads equals the probability of getting exactly 5 heads, then the probability of getting exactly one head is

A. $1/64$

B. $1/32$

C. $1/16$

D. $1/8$

Answer: B



Watch Video Solution

9. If the letters of the word PROBABILITY are written down at random in a row, the probability that two B-s are together is

A. $2/11$

B. $10/11$

C. $3/11$

D. $6/11$

Answer: A



Watch Video Solution

10. Let A and B be two events such that

$$P(A \cap B) = \frac{1}{6}, P(A \cup B) = \frac{31}{45} \quad \text{and}$$

$$P(\bar{B}) = \frac{7}{10}, \text{ then}$$

A. A and B are independent

B. A and B are mutually exclusive

C. $P\left(\frac{A}{B}\right) < \frac{1}{6}$

D. $P\left(\frac{B}{A}\right) < \frac{1}{6}$

Answer: A



Watch Video Solution

11. S.D. of n observation $a_1, a_2, a_3, \dots, a_n$ is σ

then the S.D. of the observations

$\lambda a_1, \lambda a_2, \dots, \lambda a_n$ is

A. $\lambda\sigma$

B. $-\lambda\sigma$

C. $|\lambda|\sigma$

D. $\lambda_n\sigma$

Answer: C



Watch Video Solution

12. Mean of n observations x_1, x_2, \dots, x_n is \bar{x} .

If an observation x_q is replaced by x'_q then

the new mean is

A. $\bar{x} = x_q + x'_q$

B. $\frac{(n-1)\bar{x} + x'_q}{n}$

C. $\frac{(n-1)\bar{x} - x'_q}{n}$

D. $\frac{n\bar{x} - x_q + x'_q}{n}$

Answer: D



Watch Video Solution

13. The probability that a non-leap year selected at random will contain 53 Sunday is

A. 0

B. $\frac{1}{7}$

C. $\frac{2}{7}$

D. $\frac{3}{7}$

Answer: B



Watch Video Solution

14. In order to get a head at least once with probability ≥ 0.9 , the minimum number of times a unbiased coin needs to be tossed is

A. 5

B. 4

C. 5

D. 6

Answer: B



Watch Video Solution

15. A student appears for tests I, II and III. The student is successful if the passes either in tests I and II or tests I and III. The probabilities

of the student passing in tests I, II and III are p, q and $\frac{1}{2}$, respectively. If the probability that the student is successful, is $\frac{1}{2}$, then

A. $p(1 + q) = 1$

B. $q(1 + p) = 1$

C. $pq = 1$

D. $\frac{1}{p} + \frac{1}{q} = 1$

Answer: A



Watch Video Solution

16. A problem in mathematics is given to 4 students whose chances of solving individually are $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$ and $\frac{1}{5}$. The probability that the problem will be solved at least by one student is

A. $\frac{2}{3}$

B. $\frac{3}{5}$

C. $\frac{4}{5}$

D. $\frac{3}{4}$

Answer: C



Watch Video Solution

17. If X is a random variable such that $\sigma(X) = 2.6$, then $\sigma(1 - 4X)$ is equal to

A. 7.8

B. -10.4

C. 13

D. 10.4

Answer: D



Watch Video Solution

Wb Jee Previous Years Questions Category 2

Single Option Correct Type 2 Marks

1. An objective type test paper has 5 questions. Out of these 5 question, 3 questions have four options each (A, B, C, D) with option being the correct answer. The other 2 questions have two options each, namely true and false. A candidate randomly ticks the options. The probability that he/she will tick the correct option in atleast four questions is

A. $\frac{5}{32}$

B. $\frac{3}{128}$

C. $\frac{3}{256}$

D. $\frac{3}{64}$

Answer: D



Watch Video Solution

2. A student answers a multiple choice question with 5 alternatives, of which exactly one is correct. The probability that he knows

the correct answer is p , $0 < p < 1$. If he does not know the correct answer, he randomly ticks one answer. Given that he has answered the question correctly, the probability that he did not tick the answer randomly, is

A. $\frac{3p}{4p + 3}$

B. $\frac{5p}{3p + 2}$

C. $\frac{5p}{4p + 1}$

D. $\frac{4p}{3p + 1}$

Answer: C



3. A poker hand consists of 5 cards drawn at random from a well-shuffled pack of 52 cards. Then the probability that a poker hand consists of a pair and a triple of equal face values (for example, 2 sevens and 3 kings or 2 aces and 3 queens, etc.) is

A. $\frac{6}{4165}$

B. $\frac{23}{4165}$

C. $\frac{1797}{4165}$

D. $\frac{1}{4165}$

Answer: A



Watch Video Solution

4. A person goes to office either by car, scooter, bus or train probability of which being $\frac{1}{7}$, $\frac{3}{7}$, $\frac{2}{7}$ and $\frac{1}{7}$ respectively.

Probability that he reaches office late, if he takes car, scooter, bus or train is $\frac{2}{9}$, $\frac{1}{9}$, $\frac{4}{9}$ and $\frac{1}{9}$ respectively. Given that he

reached office in time, then what is the probability that he travelled by a car?

A. $1/7$

B. $2/7$

C. $3/7$

D. $4/7$

Answer: A



Watch Video Solution

5. If 5 distinct balls are placed at random into 5 cells, then the probability that exactly one cell remains empty is

A. $\frac{48}{125}$

B. $\frac{12}{125}$

C. $\frac{8}{125}$

D. $\frac{1}{125}$

Answer: A



Watch Video Solution

6. A survey of people in a given region showed that 20% were smokers. The probability of death due to lung cancer, given that a person smoked, was 10 times the probability of death due to lung cancer, given that a person did not smoke. If the probability of death due to lung cancer in the region is 0.006, what is the probability of death due to lung cancer given that a person is a smoker?

A. $1/140$

B. $1/70$

C. $\frac{3}{140}$

D. $\frac{1}{10}$

Answer: C



Watch Video Solution

7. In a group 14 males and 6 females, 8 and 3 of the males and females respectively are aged above 40 years. The probability that a person selected at random from the group is aged

above 40 years, given that the selected person is female, is

A. $\frac{2}{7}$

B. $\frac{1}{2}$

C. $\frac{1}{4}$

D. $\frac{5}{6}$

Answer: B



Watch Video Solution

**Wb Jee Previous Years Questions Category 3 One
Or More Than One Option Correct Type 2 Marks**

1. For the two events A and B, let $P(A) = 0.5$ and $P(B) = 0.6$. The necessarily false statement(s) is/are

A. $P(A \cap B) = 0.35$

B. $P(A \cap B) = 0.45$

C. $P(A \cap B) = 0.65$

D. $P(A \cap B) = 0.02$

Answer: C::D



Watch Video Solution

2. Suppose a machine produces metal parts that contains some defective parts with probability 0.05. How many parts should be produced in order that the probability of at least one part being defective is $\frac{1}{2}$ or more ?

(Given $\log_{10} 95 = 1.977$ and $\log_{10} 2 = 0.3$)

A. 11

B. 12

C. 15

D. 14

Answer: C::D



Watch Video Solution

3. If A, B are two events such that

$$P(A \cup B) \geq \frac{3}{4} \text{ and } \frac{1}{8} \leq P(A \cap B) \leq \frac{3}{8}$$

then

A. $P(A) + P(B) \leq \frac{11}{8}$

B. $P(A) \cdot P(B) \leq \frac{3}{8}$

C. $P(A) + P(B) \geq \frac{7}{8}$

D. none of these

Answer: A::C



Watch Video Solution