

Topic :-PROBABILITY

- An unbiased coin is tossed n times. Let X denote the number of times head occurs. If $P(X = 4)$, $P(X = 5)$ and $P(X = 6)$ are in AP, then the value of n can be
a) 7, 14 b) 10, 14 c) 12, 7 d) None of these
- Three letters, to each of which corresponds an envelope, are placed in the envelopes at random. The probability that all the letters are not placed in the right envelopes, is
a) $1/6$ b) $5/6$ c) $1/3$ d) $2/3$
- Let A and B be two finite sets having m and n elements respectively such that $m \leq n$. A mapping is selected at random from the set of all mappings from A to B . The probability that the mapping selected is an injection, is
a) $\frac{n!}{(n-m)!m^n}$ b) $\frac{n!}{(n-m)!n^m}$ c) $\frac{m!}{(n-m)!n^m}$ d) $\frac{m!}{(n-m)!m^n}$
- In a series of three trials the probability of exactly two successes in nine times as large as the probability of three successes. Then, the probability of success in each trial is
a) $1/2$ b) $1/3$ c) $1/4$ d) $3/4$
- 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) $\frac{4}{1155}$
- The probability that in a family of 5 members, exactly 2 members have birthday on sunday, is
a) $\frac{12 \times 5^3}{7^5}$ b) $\frac{10 \times 6^2}{7^5}$ c) $\frac{2}{5}$ d) $\frac{10 \times 6^3}{7^5}$
- If the mean and standard deviation of a binomial distribution are 12 and 2 respectively, then value of its parameter p is
a) $1/2$ b) $1/3$ c) $2/3$ d) $1/4$
- In shuffling a pack of playing cards, four are accidently dropped. The probability that missing cards should be one from each suit, is
a) $\frac{1}{256}$ b) $\frac{1}{270725}$ c) $\frac{2197}{20825}$ d) None of these

9. The probability of India winning a test match against West-Indies is $\frac{1}{2}$ assuming independence from match to match the probability that in a match series India's second win occurs at the third test, is

- a) $\frac{1}{8}$ b) $\frac{1}{4}$ c) $\frac{1}{2}$ d) $\frac{2}{3}$

10. If n positive integers are taken at random and multiplied together, the probability that the last digit of the product is 2, 4, 6 or 8, is

- a) $\frac{4^n + 2^n}{5^n}$ b) $\frac{4^n \times 2^n}{5^n}$ c) $\frac{4^n - 2^n}{5^n}$ d) None of these

11. A bag contains 5 white and 3 black balls and 4 balls are successively drawn out and not replaced. The probability that they are alternately of different colours, is

- a) $\frac{1}{196}$ b) $\frac{2}{7}$ c) $\frac{13}{56}$ d) $\frac{1}{7}$

12. An urn contains 4 white and 3 red balls. These balls are drawn with replacement from this urn. Then, the standard deviation of the number of red balls drawn is

- a) $\frac{6}{7}$ b) $\frac{36}{49}$ c) $\frac{5}{7}$ d) $\frac{25}{49}$

13. If X follows a binomial distribution with parameters $n = 100$ and $P = \frac{1}{3}$, then $P(X = r)$ is maximum when r is equal to

- a) 16 b) 32 c) 33 d) None of these

14. A carton contains 20 bulbs, 5 of which are defective. The probability that, if a sample of 3 bulbs is chosen at random from the carton, 2 will be defective, is

- a) $1/16$ b) $3/64$ c) $9/64$ d) $2/3$

15. In a binomial distribution, mean is 3 and standard deviation is $\frac{3}{2}$, then the probability distribution is

- a) $\left(\frac{3}{4} + \frac{1}{4}\right)^{12}$ b) $\left(\frac{1}{4} + \frac{3}{4}\right)^{12}$ c) $\left(\frac{1}{4} + \frac{3}{4}\right)^9$ d) $\left(\frac{3}{4} + \frac{1}{4}\right)^9$

16. If A and B are two events then the value of the determinant chosen at random from all the determinants of order 2 with entries 0 or 1 only is positive or negative respectively. Then,

- a) $P(A) > P(B)$ b) $P(A) < P(B)$ c) $P(A) = P(B) = 1/2$ d) $P(A) = P(B)$

17. If $P(A) = \frac{1}{12}$, $P(B) = \frac{5}{12}$ and $P\left(\frac{B}{A}\right) = \frac{1}{15}$, then $P(A \cup B)$ is equal to

- a) $\frac{89}{180}$ b) $\frac{90}{180}$ c) $\frac{91}{180}$ d) $\frac{92}{180}$

18. A dice is thrown 100 times. Getting an even number is considered a success. The variance of the number of successes is

- a) 10 b) 20 c) 25 d) 50

19. If the mean and S.D. of a binomial distribution are 20 and 4 respectively, then the number of trials is

a) 50

b) 25

c) 100

d) 80

20. Probability that in the toss of two dice we obtain an even sum or a sum less than 5, is

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

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

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

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

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