

Topic :-PROBABILITY

- If A and B are events of a random experiment such that $P(A \cup B) = \frac{4}{5}$, $P(\bar{A} \cup \bar{B}) = \frac{7}{10}$ and $P(B) = \frac{2}{5}$, then $P(A)$ equals
a) $\frac{9}{10}$ b) $\frac{8}{10}$ c) $\frac{7}{10}$ d) $\frac{3}{5}$
- Two cards are drawn one by one from a pack of cards. The probability of getting first card an ace and second a coloured one is (before drawing second card first card is not placed again in the pack)
a) $1/26$ b) $5/52$ c) $5/221$ d) $4/13$
- 4 five-rupee coins, 3 two-rupee coins and 2 one-rupee coins are stacked together in a column at random. The probability that the coins of the same denominator are consecutive is
a) $13/9!$ b) $1/210$ c) $1/35$ d) None of these
- If two squares are chosen at random on a chess board, the probability that they have a side in common is
a) $1/9$ b) $1/18$ c) $2/7$ d) None of these
- In an entrance test there are multiple choice questions. There are four possible answers to each question, of which one is correct. The probability that a student knows the answer to a question is 90%. If he gets the correct answer to a question, then the probability that he was guessing, is
a) $\frac{37}{40}$ b) $\frac{1}{37}$ c) $\frac{36}{37}$ d) $\frac{1}{9}$
- If A and B are any two events, then $P(A \cap B')$ is equal to
a) $P(A) + P(B')$ b) $P(A)P(B)$ c) $P(B) - P(A \cap B)$ d) $P(A) - P(A \cap B)$
- Two dice are rolled one after the other. The probability that the number on the first is smaller than the number on the second is
a) $\frac{1}{2}$ b) $\frac{3}{4}$ c) $\frac{7}{18}$ d) $\frac{5}{12}$
- A fair coin is tossed repeatedly. If the tail appears on first four tosses, then the probability of the head appearing on the fifth toss, equals
a) $\frac{1}{2}$ b) $\frac{1}{32}$ c) $\frac{31}{32}$ d) $\frac{1}{5}$

9. A bag contains $(2n + 1)$ coins. It is known that n of these coins have a head on both sides, whereas the remaining $n + 1$ coins are fair. A coin is picked up at random from the bag and tossed. If the probability that the toss results in a head is $\frac{31}{42}$, then n is equal to
- a) 10 b) 11 c) 12 d) 13
10. The mode of the binomial distribution for which mean and standard deviation are 10 and $\sqrt{5}$ respectively, is
- a) 7 b) 8 c) 9 d) 10
11. The mean and standard deviation of a binomial variate X are 4 and $\sqrt{3}$ respectively. Then, $P(X \geq 1)$ is equal to
- a) $1 - \left(\frac{1}{4}\right)^{16}$ b) $1 - \left(\frac{3}{4}\right)^{16}$ c) $1 - \left(\frac{2}{3}\right)^{16}$ d) $1 - \left(\frac{1}{3}\right)^{16}$
12. A box contains 15 transistors, 5 of which are defective. An inspector takes out one transistor at random, examines it for defects and replaces it. After it has replaced another inspector does the same thing and then so does a third inspector. The probability that atleast one of the inspectors finds a defective transistor, is equal to
- a) $\frac{1}{27}$ b) $\frac{8}{27}$ c) $\frac{19}{27}$ d) $\frac{26}{27}$
13. The records of a hospital show that 10% of the cases of a certain disease are fatal. If 6 patients are suffering from the disease, then the probability that only three will die, is
- a) 8748×10^{-5} b) 1458×10^{-5} c) 1458×10^{-6} d) 41×10^{-6}
14. The probability that at least one of the events A and B occurs is 0.6. If A and B occur simultaneously with probability 0.2, then $P(\bar{A}) + P(\bar{B})$ is
- a) 0.4 b) 0.8 c) 1.2 d) 1.4
15. The probability that in the toss of two dice, we obtain the sum 7 or 11, is
- a) $\frac{1}{6}$ b) $\frac{1}{18}$ c) $\frac{2}{9}$ d) $\frac{23}{108}$
16. If $a \in [-20, 0]$, then the probability that the graph of the function $y = 16x^2 + 8(a + 5)x - 7a - 5$ is strictly above the x -axis is
- a) $\frac{1}{2}$ b) $\frac{1}{17}$ c) $\frac{17}{20}$ d) None of these
17. There are 5 duplicate and 10 original items in an automobile shop and 3 items are brought at random by a customer. The probability that none of the items is duplicate, is
- a) $\frac{20}{91}$ b) $\frac{22}{91}$ c) $\frac{24}{91}$ d) $\frac{89}{91}$
18. There are four machines and it is known that exactly two of them are faulty. They are tested, one by one in a random order till both the faulty machines are identified. Then, the probability that only two tests are needed, is
- a) $\frac{1}{3}$ b) $\frac{1}{6}$ c) $\frac{1}{2}$ d) $\frac{1}{4}$
19. A bag contains 50 tickets numbered 1, 2, 3, ..., 50 of which five are drawn at random and arranged in ascending order of magnitude ($x_1 < x_2 < x_3 < x_4 < x_5$). The probability that $x_3 = 30$, is

a) $\frac{{}^{20}C_2}{{}^{50}C_5}$

b) $\frac{{}^{29}C_2}{{}^{50}C_5}$

c) $\frac{{}^{20}C_2 \times {}^{29}C_2}{{}^{50}C_5}$

d) None of these

20. The probability of having at least one tail in 4 throws with a coin, is

a) $\frac{15}{16}$

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

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

d) 1

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