# RAVI MATHS TUITION CENTER, CHENNAI-82. WHATSAPP - 8056206308

**Probability**

12th Standard

Maths

45 x 1 = 45

1) If P(A) = $\frac{1}{2}$, P(B) = 0, then P(A | B) is _____.

(a) 0 (b) $\frac{1}{2}$ (c) not defined (d) 1

2) If A and B are events such that P(A | B) = P(B | A), then _____.

(a) A ⊂ B but A ≠ B (b) A = B (c) A ∩ B = Φ (d) P(A) = P(B)

3) The probability of obtaining an even prime number on each die, when a pair of dice is rolled is _____.

(a) 0 (b) $\frac{1}{3}$ (c) $\frac{1}{12}$ (d) $\frac{1}{36}$

4) Two events A and B will be independent, if _____.

(a) A and B are mutually exclusive (b) P(A'B') = [1 – P(A)] [1 – P(B)] (c) P(A) = P(B)

(d) P(A) + P(B) = 1

5) Probability that A speaks truth is $\frac{4}{5}$. A coin is tossed. A reports that a head appears. The probability that actually there was head is ____.

(a) $\frac{4}{5}$ (b) $\frac{1}{2}$ (c) $\frac{1}{5}$ (d) $\frac{2}{5}$

6) If A and B are two events such that A ⊂ B and P(B) ≠ 0, then which of the following is correct?

(a) $P(A|B) = \frac{P(B)}{P(A)}$ (b) P(A | B) < P(A) (c) P(A | B) ≥ P(A) (d) None of these

7) The mean of the numbers obtained on throwing a die having written 1 on three faces, 2 on two faces and 5 on one face is

(a) 1 (b) 2 (c) 5 (d) $\frac{8}{3}$

8) Suppose that two cards are drawn at random from a deck of cards. Let X be the number of aces obtained. Then the value of E(X) is

(a) $\frac{37}{221}$ (b) $\frac{5}{13}$ (c) $\frac{1}{13}$ (d) $\frac{2}{13}$

9) In a box containing 100 bulbs, 10 are defective. The probability that out of a sample of 5 bulbs, none is defective is

(a) $10^{-1}$ (b) $\left(\frac{1}{2}\right)^5$ (c) $\left(\frac{9}{2}\right)^5$ (d) $\frac{9}{10}$

10) If A and B are two events such that P(A) ≠ 0 and P(B | A) = 1, then

(a) A ⊂ B (b) B ⊂ A (c) B = Φ (d) A = Φ

11) If P(A | B) > P(A), then which of the following is correct

(a) P(B | A) < P(B) (b) P(A ∩ B) < P(A) . P(B) (c) P(B | A) > P(B) (d) P(B | A) = P(B)

12) A and B are any two events such that P(A) + P(B) – P(A and B) = P(A), then

(a) P(B | A) = 1 (b) P(A | B) = 1 (c) P(B | A) = 0 (d) P(A | B) = 0

13) Let A and B be two given events such that P(A) = 0.6, P(B) = 0.2 and P(A/B) = 0.5. Then P(A'/B') is

(a) $\frac{1}{10}$ (b) $\frac{3}{10}$ (c) $\frac{3}{8}$ (d) $\frac{3}{8}$

14) Let A and B be two given independent events such that P(A) =p and P(B) = q and P(exactly one of A, B) = $\frac{2}{3}$, then value of 3p + 3q – 6pq is

(a) 2 (b) -2 (c) 4 (d) -4

15) If P(A ∩ B) = 70% and P(B) = 85%, then P(A/B) is equal to

(a) $\frac{14}{17}$ (b) $\frac{17}{20}$ (c) $\frac{7}{8}$ (d) $\frac{1}{8}$

16) Two dice are thrown once. If it is known that the sum of the numbers on the dice was less than 6 the probability of getting a sum 3 is

(a) $\frac{1}{18}$ (b) $\frac{5}{18}$ (c) $\frac{1}{5}$ (d) $\frac{2}{5}$

17) Three balls are drawn from a bag containing 2 red and 5 black balls, if the random variable X represents the number of red balls drawn, then X can take values

(a) 0, 1, 2 (b) 0, 1, 2, 3 (c) 0 (d) 1, 2

18) The probability distribution of the discrete variable X is given as:

| X | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| P(X) | $\frac{5}{k}$ | $\frac{7}{k}$ | $\frac{9}{5}$ | $\frac{11}{k}$ |

The value of k is

(a) 8 (b) 16 (c) 32 (d) 48

19) If $P(\dot{A}) = \frac{4}{5}$ and $P(A \cap B) = \frac{7}{10}$ ,then P(B/ A) is

(a) $\frac{1}{10}$ (b) $\frac{1}{8}$ (c) $\frac{7}{8}$ (d) $\frac{17}{20}$

20) If $P(A) = \frac{3}{10}, P(B) = \frac{2}{5}$ and $P(A \cup B) = \frac{3}{5}$ ,then

(a) $\frac{1}{4}$ (b) $\frac{1}{3}$ (c) $\frac{5}{12}$ (d) $\frac{7}{12}$

21) If $P(A) = 0.4, P(B) = 0.8$ and $P(B/A) = 0.6$ then $P(A \cup B)$ is equal to

(a) 0.24 (b) 0.3 (c) 0.48 (d) 0.96

22) By rule of multiplication of probability $P(E \cap F)$ is equal to

(a) P(E)· P(F / E) (b) P(F)· P(E / F) (c) Both (a) and (b) (d) None of these

23) Four cards are successively drawn without replacement from a deck of 52 playing cards. The probability that all the four cards are king is.

(a) $\frac{1}{270721}$ (b) $\frac{1}{270722}$ (c) $\frac{1}{270724}$ (d) $\frac{1}{270725}$

24) If three mutually independent events are A, B andC, then

(a) $P(A \cap B) = P(A) \cdot P(B); P(A \cap C) = P(A) \cdot P(C)$ (b) $P(B \cap C) = P(B) \cdot P(C)$

(c) $P(A \cap B \cap C) = P(A) \cdot P(B) \cdot P(C)$ (d) All of the above

25) Two events A and B are said to be independent, if

(a) A and B are mutually exclusive (b) $P(A' \cap B') = [1 - P(A)][1 - P(B)]$ (c) $P(A) = P(B)$

(d) P(A) + P(B) = 1

26) The events $E_1, E_2, \ldots, E_n$ represent a partition of the sample space S, if

(a) $E_i \cap E_j = \phi, i \neq j, i, j = 1, 2, 3, \ldots, n$ (b) $E_1 \cup E_2 \cup \ldots \cup E_n = S$

(c) $P(E_i) > 0$ for all $i = 1, 2, 3, \ldots, n$ (d) All of the above

27) Let $\{E_1, E_2, \ldots, E_3\}$ be a partition of the sample space S and A be any event associated with S then

(a) $P(A) = P(E_1) P(A/E_1) + P(E_2) P(A/E_2) + \ldots + P(E_n) P(A/E_n)$

(b) $P(A) = \sum_{1=1}^{n} P(E_j) P(A/E_j)$ (c) Both (a) and (b) (d) None of these

28) If $E_1, E_2, \ldots E_n$ constitute a partition of sample space S and A is any event of non -zero probability, then P(EJ A) is equal to

(a) $\frac{P(E_i)P(A/E_i)}{\sum_{j=1}^{n} P(E_j)P(A/E_j)}$ for any $i = 1, 2, 3, \ldots, n$ (b) $\frac{P(E_i)P(E_i/A)}{\sum_{j=1}^{n} P(E_j)P(A/E_j)}$ for any $i = 1, 2, 3, \ldots, n$

(c) $\frac{P(E_i)P(E_i/A)}{P(A)}$ for any $i = 1, 2, 3, \ldots, n$ (d) None of the above

29) Let X represent the difference between the number of heads and the number of tails obtained when a coin is tossed 6 times. Then the possible values of X are

(a) 0,1,3,5 (b) 0,1,2,3 (c) 0,1,2,4 (d) 0,2,4,6

30) For the following probability distribution.

| $\mathbf{X}$ | $-4$ | $-3$ | $-2$ | $-1$ | $0$ |
|---|---|---|---|---|---|
| $\boldsymbol{P(X)}$ | 0.1 | 0.2 | 0.3 | 0.2 | 0.2 |

E(X) is equal to

(a) 0 (b) -1 (c) -2 (d) -1.8

31) The mean of the number obtained on throwing a die having written 1on three faces, 2 on two faces and 5 on one face is

(a) 1 (b) 2 (c) 5 (d) $\frac{8}{3}$

32) If A and B are events such that $P\left(\frac{A}{B}\right) = P\left(\frac{B}{A}\right)$ then

(a) $A \subset B$ but $A \neq B$ (b) A=B (c) $A \cap B = \phi$ (d) p(A) = PCB

33) If 3 A and B are two events such that $P(B) = \frac{3}{5}$,$P(A/B) = \frac{1}{2}$ and $P(A \cup B) = \frac{4}{5}$ then P(A) equals

(a) $\frac{3}{10}$ (b) $\frac{1}{5}$ (c) $\frac{1}{2}$ (d) $\frac{3}{5}$

34) IfA and B are two events such that $A \subset B$ and $P(B) \neq 0$ ,then which of the following is correct?

(a) $P\left(\frac{B}{A}\right) = \frac{P(A)}{P(B)}$ (b) $P\left(\frac{A}{B}\right) < P(A)$ (c) $P\left(\frac{A}{B}\right) \geq P(A)$ (d) None of these

35) A flashlight has 8 batteries out of which 3 are dead. If two batteries are selected without replacement and tested, then probability that both are dead is

(a) $\frac{33}{56}$ (b) $\frac{9}{64}$ (c) $\frac{1}{14}$ (d) $\frac{3}{28}$

36) If two events are independent, then

(a) they must be mutually exclusive (b) the sum of their probabilities must be equal to 1

(c) Both (a) and (b) are correct (d) None ofthe above is correct

37) If a die is thrown and a card is selected at random from a deck of 52 playing cards, then the probability of getting an even number on the die and a spade card is

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

38) Two events A and B are said to be independent if

(a) $P(A \cup B) = P(A)P(B)$ (b) $P(A \cap B) = 0$ (c) $P(A \cap B) = P(A)P(B)$ (d) none of these

39) If events A and B are independent, p(A) = 0.35,p(A∪B) = 0.60 then P(B) is

(a) 0.25 (b) 0 (c) 0.95 (d) none of these

40) The probability of A, Band C solving a problem are $\frac{1}{2}$, $\frac{1}{3}$ and $\frac{1}{4}$ respectively. Then the probability that the problem will be solved is

(a) $\frac{1}{2}$ (b) $\frac{3}{4}$ (c) $\frac{1}{4}$ (d) none of these

41) A pair of dice is thrown and it is known that the second dice always exhibits an odd number. Then the probability that the sum obtained on two dice is 7, is

(a) $\frac{1}{6}$ (b) $\frac{5}{6}$ (c) $\frac{1}{2}$ (d) none of these

42) Bag A contains 3 red and 5 black balls and bag B contains 2 red and 4 black balls. A ball is drawn from one of the bags. The probability that ball drawn is red is

(a) $\frac{17}{24}$ (b) $\frac{17}{48}$ (c) $\frac{3}{8}$ (d) $\frac{1}{3}$

43) A bag contains 5 red, 6 blue and 4 black balls. Three balls are drawn from the bag. Then the probability that none of them is red, is

(a) $\frac{24}{91}$ (b) $\frac{2}{91}$ (c) $\frac{6}{35}$ (d) none of these

44) If P(A) = 0.3, P(B) = 0.5 and P(A/B) = 0.4, then P(B/A) is

(a) $-\frac{2}{3}$ (b) $\frac{2}{3}$ (c) $\frac{3}{5}$ (d) none of these

45) A bag A contains 3 white, 2 red balls and a bag B contains 4 white and 5 red balls. One ball is drawn at random from one of the bags and is found to be red, then the probability that it was drawn from bag B is

(a) $\frac{27}{43}$ (b) $\frac{20}{43}$ (c) $\frac{25}{43}$ (d) none of these

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