

QB365 Question Bank Software Study Materials

Introduction To Probability Theory 50 Important 1 Marks Questions With Answers (Book Back and Creative)

11th Standard

Maths

Total Marks : 50

Multiple Choice Question

50 x 1 = 50

- 1) Four persons are selected at random from a group of 3 men, 2 women, and 4 children. The probability that exactly two of them are children is
 (a) $\frac{3}{4}$ (b) $\frac{10}{23}$ (c) $\frac{1}{2}$ **(d) $\frac{10}{21}$**
- 2) A number is selected from the set $\{1,2,3,\dots,20\}$. The probability that the selected number is divisible by 3 or 4 is
 (a) $\frac{2}{5}$ (b) $\frac{1}{8}$ **(c) $\frac{1}{2}$** (d) $\frac{2}{3}$
- 3) A, B, and C try to hit a target simultaneously but independently. Their respective probabilities of hitting the target are $\frac{3}{4}$, $\frac{1}{2}$, $\frac{5}{8}$. The probability that the target is hit by A or B but not by C is
(a) $\frac{21}{64}$ (b) $\frac{7}{32}$ (c) $\frac{9}{64}$ (d) $\frac{7}{8}$
- 4) If A and B are any two events, then the probability that exactly one of them occur is
 (a) $P(A \cup \bar{B}) + P(\bar{A} \cup B)$ **(b) $P(A \cap \bar{B}) + P(\bar{A} \cap B)$** (c) $P(A) + P(B) - P(A \cap B)$
 (d) $P(A) + P(B) + 2P(A \cap B)$
- 5) Let A and B be two events such that $P(\overline{A \cup B}) = \frac{1}{6}$, $P(A \cap B) = \frac{1}{4}$ and $P(\bar{A}) = \frac{1}{4}$. Then the events A and B are
 (a) Equally likely but not independent **(b) Independent but not equally likely** (c) Independent and equally likely
 (d) Mutually inclusive and dependent
- 6) Two items are chosen from a lot containing twelve items of which four are defective, then the probability that at least one of the item is defective
(a) $\frac{19}{33}$ (b) $\frac{17}{33}$ (c) $\frac{23}{33}$ (d) $\frac{13}{33}$
- 7) A man has 3 fifty rupee notes, 4 hundred rupees notes, and 6 five hundred rupees notes in his pocket. If 2 notes are taken at random, what are the odds in favour of both notes being of hundred rupee denomination?
(a) 1:12 (b) 12:1 (c) 13:1 (d) 1:13
- 8) A letter is taken at random from the letters of the word 'ASSISTANT' and another letter is taken at random from the letters of the word 'STATISTICS'. The probability that the selected letters are the same is
 (a) $\frac{7}{45}$ (b) $\frac{17}{90}$ (c) $\frac{29}{90}$ **(d) $\frac{19}{90}$**
- 9) A matrix is chosen at random from a set of all matrices of order 2, with elements 0 or 1 only. The probability that the determinant of the matrix chosen is non zero will be
 (a) $\frac{3}{16}$ **(b) $\frac{3}{8}$** (c) $\frac{1}{4}$ (d) $\frac{5}{8}$
- 10) A bag contains 5 white and 3 black balls. Five balls are drawn successively without replacement. The probability that they are alternately of different colours is
 (a) $\frac{3}{14}$ (b) $\frac{5}{14}$ **(c) $\frac{1}{14}$** (d) $\frac{9}{14}$

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

- 11) (a) $P(A/B) = \frac{P(A)}{P(B)}$ (b) $P(A/B) < P(A)$ (c) $P(A/B) \geq P(A)$ (d) $P(A/B) > P(A)$
- 12) A bag contains 6 green, 2 white, and 7 black balls. If two balls are drawn simultaneously, then the probability that both are different colours is
 (a) $\frac{68}{105}$ (b) $\frac{71}{105}$ (c) $\frac{64}{105}$ (d) $\frac{73}{105}$
- 13) If X and Y be two events such that $P(X/Y) = \frac{1}{2}$, $P(Y/X) = \frac{1}{3}$ and $P(X \cap Y) = \frac{1}{6}$, then $P(X \cup Y)$ is
 (a) $\frac{1}{3}$ (b) $\frac{2}{5}$ (c) $\frac{1}{6}$ (d) $\frac{2}{3}$
- 14) An urn contains 5 red and 5 black balls. A ball is drawn at random, its colour is noted and is returned to the urn. Moreover, 2 additional balls of the colour drawn are put in the urn and then a ball is drawn at random. The probability that the second ball drawn is red will be
 (a) $\frac{5}{12}$ (b) $\frac{1}{2}$ (c) $\frac{7}{12}$ (d) $\frac{1}{4}$
- 15) A number x is chosen at random from the first 100 natural numbers. Let A be the event of numbers which satisfies $\frac{(x-10)(x-50)}{x-30} \geq 0$, then P(A) is
 (a) 0.20 (b) 0.51 (c) **0.71** (d) 0.70
- 16) If two events A and B are independent such that $P(A) = 0.35$ and $P(A \cup B) = 0.6$, then P(B) is
 (a) $\frac{5}{13}$ (b) $\frac{1}{13}$ (c) $\frac{4}{13}$ (d) $\frac{7}{13}$
- 17) If two events A and B are such that $P(\bar{A}) = \frac{3}{10}$ and $P(A \cap \bar{B}) = \frac{1}{2}$, then $P(A \cap B)$ is
 (a) $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) $\frac{1}{4}$ (d) $\frac{1}{5}$
- 18) If A and B are two events such that $P(A) = 0.4$, $P(B) = 0.8$ and $P(B/A) = 0.6$, then $P(\bar{A} \cap B)$ is
 (a) 0.96 (b) 0.24 (c) **0.56** (d) 0.66
- 19) There are three events A, B, and C of which one and only one can happen. If the odds are 7 to 4 against A and 5 to 3 against B, then odds against C is
 (a) 23: 65 (b) **65: 23** (c) 23: 88 (d) 88: 23
- 20) If a and b are chosen randomly from the set {1,2,3,4} with replacement, then the probability of the real roots of the equation $x^2 + ax + b = 0$ is
 (a) $\frac{3}{16}$ (b) $\frac{5}{16}$ (c) $\frac{7}{16}$ (d) $\frac{11}{16}$
- 21) It is given that the events A and B are such that $P(A) = \frac{1}{4}$, $P(A/B) = \frac{1}{2}$ and $P(B/A) = \frac{2}{3}$. Then P(B) is
 (a) $\frac{1}{6}$ (b) $\frac{1}{3}$ (c) $\frac{2}{3}$ (d) $\frac{1}{2}$
- 22) In a certain college 4% of the boys and 1% of the girls are taller than 1.8 meter. Further 60% of the students are girls. If a student is selected at random and is taller than 1.8 meters, then the probability that the student is a girl is
 (a) $\frac{2}{11}$ (b) $\frac{3}{11}$ (c) $\frac{5}{11}$ (d) $\frac{7}{11}$
- 23) Ten coins are tossed. The probability of getting at least 8 heads is
 (a) $\frac{7}{64}$ (b) $\frac{7}{32}$ (c) $\frac{7}{16}$ (d) $\frac{7}{128}$
- 24) The probability of two events A and B are 0.3 and 0.6 respectively. The probability that both A and B occur simultaneously is 0.18. The probability that neither A nor B occurs is
 (a) 0.1 (b) 0.72 (c) 0.42 (d) **0.28**
- 25) If m is a number such that $m \leq 5$, then the probability that quadratic equation $2x^2 + 2mx + m + 1 = 0$ has real roots is
 (a) $\frac{1}{5}$ (b) $\frac{2}{5}$ (c) $\frac{3}{5}$ (d) $\frac{4}{5}$

- 26) A and B are two events such that $p(A) = 0.25$, $P(B) = 0.50$. The probability of both happening together is 0.14. The probability of both A and B not happening is
(a) 0.39 (b) 0.25 (c) 0.11 (d) none of these
- 27) A speaks truth in 75% cases and B speaks truth in 80% cases. Probability that they contradict each other in a statement is
(a) $\frac{7}{20}$ (b) $\frac{13}{20}$ (c) $\frac{3}{5}$ (d) $\frac{2}{5}$
- 28) Three integers are chosen at random from the first 20 integers. The probability that their product is even is
 (a) $\frac{2}{19}$ (b) $\frac{3}{19}$ **(c) $\frac{17}{19}$** (d) $\frac{4}{19}$
- 29) A bag contains 5 black balls, 4 white balls and 3 red balls. If a ball is selected at random, the probability that it is black or red ball is
 (a) $\frac{1}{3}$ (b) $\frac{1}{4}$ (c) $\frac{5}{12}$ **(d) $\frac{2}{3}$**
- 30) If $P(A \cup B) = 0.8$ and $P(A \cap B) = 0.3$ then $P(\bar{A}) + P(\bar{B}) =$
 (a) 0.3 (b) 0.5 (c) 0.7 **(d) 0.9**
- 31) The probability that in a year of 22nd century, chosen at random there will be 53 Sundays is
 (a) $\frac{3}{28}$ (b) $\frac{2}{28}$ (c) $\frac{7}{28}$ **(d) $\frac{5}{28}$**
- 32) If A and B are two events such that $P(A \cap B) = \frac{7}{10}$ and $P(B) = \frac{17}{20}$, then $P(A/B) =$
(a) $\frac{14}{17}$ (b) $\frac{17}{20}$ (c) $\frac{7}{8}$ (d) $\frac{1}{8}$
- 33) If $P(A) = \frac{1}{2}$, $P(B) = \frac{1}{3}$ and $P(A/B) = \frac{1}{4}$, then $P(\bar{A} \cap \bar{B}) =$
 (a) $\frac{1}{12}$ (b) $\frac{3}{4}$ **(c) $\frac{1}{4}$** (d) $\frac{3}{16}$
- 34) If $P(A) = 0.4$, $P(B) = 0.3$ and $P(A \cup B) = 0.5$, then $P(\bar{B} \cap A) =$
 (a) $\frac{2}{3}$ (b) $\frac{1}{2}$ (c) $\frac{3}{10}$ **(d) $\frac{1}{5}$**
- 35) A die is thrown and a card is selected at random from a deck of 52 playing cards. The probability of getting an even number of the die and a spade card is
 (a) $\frac{1}{2}$ (b) $\frac{1}{4}$ **(c) $\frac{1}{8}$** (d) $\frac{3}{4}$
- 36) A flash light has 8 batteries out of which 3 are dead. If 2 batteries are selected without replacement and tested, the probability that both are dead is
(a) $\frac{3}{28}$ (b) $\frac{1}{14}$ (c) $\frac{9}{64}$ (d) $\frac{33}{56}$
- 37) Assertion (A) : In rolling die, getting number
 Reason (R) : In a die contains only numbers 1,2,3,4,5,6
 (a) Both (A) and (R) are true and (R) is the correct rexplication of (A)
 (b) Both (A) and (R) are true but (R) is not the correct explantion of (A) (c) (A) is true (R) is false **(d) (A) is false (R) is true**
- 38) Choose the incorrect pair:
 (a) A and B disjoint - $P(A \cap B) = p(A) + PCB$ (b) A and B independent - $P(A \cap B) = p(A) P(B)$ (c) A and B disjoint - $P(A \cap B) = 0$
(d) A and B independent - $P(A/B) = P(B/A)$
- 39) choose the incorrect statement
 (a) Two events cannot occur simultaneously are mutually exclusive events.
 (b) Events A_1, A_2, \dots, A_k are exhaustive if $A_1 \cup A_2 \cup \dots \cup A_k = S$
 (c) Two events having the same chance of occurrences are called equally likely events.
(d) Odds relate to the chances against an event A to chances in favour of it
- 40) Choose the correct statement

- (a) Permutation and Combination are equal **(b) Permutation is greater than combination**
(c) Permutation is lesser than combination (d) Permutation and combination are unrelated
- 41) Given two events A and B . If odds against A are as $2 : 1$ and those in favour of $A \cup B$ are as $3 : 1$, then
(a) $\frac{1}{2} \leq P(B) \leq \frac{3}{4}$ **(b) $\frac{5}{12} \leq P(B) \leq \frac{3}{4}$** (c) $\frac{1}{4} \leq P(B) \leq \frac{3}{5}$ (d) None of these
- 42) Three houses are available in a locality. Three persons apply for the houses. Each applies for one house without consulting others. The probability that all three apply for the same house is
(a) $\frac{1}{9}$ (b) $\frac{2}{9}$ (c) $\frac{7}{9}$ (d) $\frac{8}{9}$
- 43) A die is thrown a fixed number of times. If probability of getting even number 3 times is same as the probability of getting even number 4 times, then the probability of getting even number exactly once is.
(a) $\frac{1}{6}$ (b) $\frac{1}{9}$ (c) $\frac{5}{36}$ **(d) $\frac{1}{128}$**
- 44) A pair of four dice is thrown independently three times. The probability of getting a score of exactly a twice is
(a) $\frac{8}{9}$ (b) $\frac{8}{729}$ **(c) $\frac{8}{243}$** (d) $\frac{1}{729}$
- 45) A class consists of 80 students, 25 of them are girls and 55 are boys. If 10 of them are rich and the remaining are poor and also 20 of them are intelligent, then the probability of selecting an intelligent rich girl is
(a) $\frac{5}{128}$ (b) $\frac{25}{128}$ (c) $\frac{5}{512}$ (d) None of these.
- 46) A sample space consists of 3 sample points with associated probabilities given as $2R^2$, $4P - 1$. Then the value of P is
(a) $P = \sqrt{11} - 3$ (b) $\sqrt{10} - 3$ (c) $\frac{1}{4}$ (d) None of these
- 47) South African cricket captain lost the toss of a coin 13 times out of 14. The chance of this happening was
(a) $\frac{7}{2^{13}}$ (b) $\frac{1}{2^{13}}$ (c) $\frac{13}{2^{14}}$ (d) $\frac{13}{2^{13}}$
- 48) Events A and C are independent. If the probabilities relating A , B and C are $P(A) = \frac{1}{5}$, $P(B) = \frac{1}{6}$, $P(A \cap C) = \frac{1}{20}$, $P(B \cup C) = \frac{3}{8}$ Then
(a) Events B and C are independent (b) Events B and C are mutually exclusive
(c) Events B and C are neither independent nor mutually exclusive (d) Events B and C are equiprobable
- 49) Choose the incorrect pair :
(a) $P(A) + P(B) - 2P(A \cap B)$ - Exactly one of them occur (b) $P(A \cap B)$ - Simultaneous occurrence of A and B
(c) $P(A) + P(B) - P(A \cap B)$ - Occurrence of either A or B or both **(d) $1 - P(A \cup B)$ - Occurrence of only A**
- 50) The probability that a marksman will hit a target is given as $\frac{1}{5}$. Then the probability that at least once hit in 10 shots is
(a) $1 - \left(\frac{4}{5}\right)^{10}$ (b) $\left(\frac{1}{5}\right)^{10}$ (c) $1 - \left(\frac{1}{5}\right)^{10}$ (d) $\left(\frac{4}{5}\right)^{10}$