

Shiksha Classes Bhandara

Mathematics

Topic : Probability

MM 100

- Q.1** A is a 3×3 matrix with entries from the set $\{-1, 0, 1\}$. Then the probability that A is neither symmetric nor skew-symmetric is –
- (A) $\frac{3^9 + 3^6 - 3^3 + 1}{3^9}$ (B) $\frac{3^9 - 3^6 - 3^3 + 1}{3^9}$
(C) $\frac{3^9 - 3^6 + 3^3 + 1}{3^9}$ (D) 1/2
- Q.2** The probability of happening an event A in one trial is 0.4. The probability that the event A happens at least once in three independent trials is –
- (A) 0.936 (B) 0.784
(C) 0.904 (D) 0.216
- Q.3** 4 gentlemen and 4 ladies take seats at random round a table. The probability that they are sitting alternately is
- (A) 4/35 (B) 1/70
(C) 2/35 (D) 1/35
- Q.4** Let A and B be two events such that $P(A) = \frac{2}{5}$, $P(A \cup B) = \frac{7}{10}$ and $P(B/A) = \frac{1}{2}$, then $P(B) =$
- (A) 1/2 (B) 23/100
(C) 2/5 (D) None of these
- Q.5** 3 integers are chosen at random from the set of first 20 natural numbers. The chance that their product is a multiple of 3, is –
- (A) 194/285 (B) 1/57
(C) 13/19 (D) 3/4
- Q.6** One hundred cards are numbered from 1 to 100. Find the probability that a card chosen at random has the digit 5.
- (A) 19/100 (B) 11/100
(C) 12/100 (D) 1/100
- Q.7** One card is drawn from a well-shuffled pack of 52 cards. What is the probability, that it is not the ace of hearts ?
- (A) 51/52 (B) 1/52
(C) 1/12 (D) 1/2
- Q.8** One of the two events must happen. Given that the chance of one is two-third of the other, the odds in favour of the other are –
- (A) 3 : 5 (B) 2 : 5
(C) 3 : 2 (D) None of these
- Q.9** In shuffling a pack of cards three are accidentally dropped. The probability that the missing cards are of distinct colours is
- (A) $\frac{169}{425}$ (B) $\frac{165}{429}$
(C) $\frac{162}{459}$ (D) $\frac{164}{529}$
- Q.10** All the letters of the word HAMSANANDI are placed at random in a row. The probability that the word ANAND occurs without getting split is-
- (A) 1/42 (B) 1/60
(C) 1/420 (D) None of these
- Q.11** If the letter of the word SUCCESS are arranged, then the probability that similar letters occurs together is -
- (A) 4/35 (B) 2/35
(C) 1/35 (D) 3/35
- Q.12** Two cards are selected at random from a deck of 52 playing cards. The probability that both the cards are greater than 2 but less than 9 is
- (A) 46/221 (B) 63/221
(C) 81/221 (D) 93/221
- Q.13** The probability that a man can hit a target is 3/4. He tries 5 times. The probability that he will hit the target at least three times is
- (A) 291/364 (B) 371/461
(C) 471/502 (D) 459/512
- Q.14** A man draws a card from a pack of 52 cards and then replace it. After shuffling the pack, he again draws a card. This he repeats a number of times. The probability that he will draw a heart for the first time in the third draw is -
- (A) 9/64 (B) 27/64
(C) $\frac{1}{4} \times \frac{{}^{39}C_2}{{}^{52}C_2}$ (D) None
- Q.15** If the probabilities that A and B will die within a year are p and q respectively then the probability that only one of them will be alive at the end of the year is –
- (A) p + q (B) p + q – 2pq
(C) p + q – pq (D) p + q + pq
- Q.16** Out of all the arrangements that can be made taking 5 letters at a time of the word BRILLIANT one is chosen at random. The probability that this will have 5 distinct letters is
- (A) 257/502 (B) 252/507
(C) 522 / 705 (D) 255 / 702
- Q.17** Two players A and B toss 4 coins and 3 coins respectively. The probability that both of them get the same number of heads is
- (A) 35 / 256 (B) 35 / 128
(C) 1 / 16 (D) 15 / 128
- Q.18** If the letters of INTERMEDIATE are arranged, then the probability no two E's occur together is -
- (A) 7/11 (B) 5/11
(C) 2/11 (D) 6/11
- Q.19** Out of 20 consecutive numbers, three are chosen at random. The probability that their sum is odd is the same as that their sum is even.
- (A) 1/2 (B) 1/4
(C) 1/3 (D) 1/8
- Q.20** A letter is taken from the word ASSISTANT and another from the word STATISTICS. What is the probability that both the letters are the same ?
- (A) 1/45 (B) 17/70
(C) 19/90 (D) 13/90
- For Q.21-Q.25 :**
The answer to each question is a NUMERICAL VALUE.
- Q.21** Three people each flip two fair coins. The probability that exactly two of the people flipped one head and one tail, is (X/8). Find the value X.

- Q.22** A number is chosen from each of two sets
 $A = \{1, 2, 3, 4, 5, 6, 7, 8\}$ and $B = \{8, 7, 6, 5, 4, 3, 2, 1\}$.
If p_1 is the probability that the sum of the numbers is 9 and
 p_2 is the probability that sum of the numbers is 7, then
 $p_1 + p_2 = X / 32$. Find the value of X.
- Q.23** The probability that the number formed by taking all the
digits 1, 2, 3, 4, 5 is divisible by 4 is $(1/X)$. Find the value
of X.

- Q.24** India and Pakistan play a 5 match test series of hockey, the
probability that India wins at least three matches is $(1/X)$.
Find the value of X.
- Q.25** The probability that any two different cards of a well-
shuffled deck of 52 cards will be together in the deck if
their suit is not considered is $(X/13)$. Find the value of X.

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