PROBABILITY

1. Nakul Kumar has 3 fifty rupee notes, 4 hundred rupee notes and 6 five hundred rupee notes in his pocket. If 2 notes are taken at random, what are the odds in favor of both notes being of hundred rupee denominations?

2. Shivcharan, who is interested in Philately, saw 4 Indonesian, 4 Mexican and 6 Egyptian stamps in a box. He drew 2 stamps from the box one after the other. What is the probability that the stamp drawn second is Mexican when the stamp drawn first is
(A) Replaced
(B) Not replaced

3. A game involving a biased die is such that Rs. 5 is paid each time the die shows up a sore of 3, while Rs. 8 is paid for every other score on the die. The die is such that score of 3 occurs 4 times as frequently as any other score. How much would a person be willing to pay as entry fee each time, if in the long run, there has to be neither a profit nor a loss for taking part in this game?

4. 6 unbiased coins are tossed together. Find the chance that there are equal number of heads and tails.
A. 1/64 B. 3/64 C. 9/16 D. 5/16

5. An unbiased coin is tossed until it shows up the same face in two consecutive throws. What is the probability that the number of tosses is not more than 4?
A. 3/4 B. 1/18 C. 7/8 D. ¼

6. What is the probability that a quadratic equation $ax^2 + bx + c = 0$ has equal roots if a, b, c are distinct and are taken from {1, 2, 3, 4, 6, 8, 9}?
A. 1/35 B. 2/35 C. 1/105 D. 2/105

7. A cube has four of its faces blank, one face is marked 5 and the other is marked 6. In a game involving throwing this cube, a person is said to have a success, if he throws a numbered face. Two persons A and B participate in this game. A throws the cube thrice while B throws it once. Find the ratio of A's chance of success to that of B.
A. 19:9 B. 9:19 C. 8:9 D. 9:8

8. From a well shuffled pack of cards, if three cards are drawn in succession without replacement, what is the probability that the first one is an ace, the second a king and the third is a jack?
A. 1/5525 B. 8/16575 C. 16/5525 D. 64/16575

9. A bag contains 6 red and 4 white balls. If one of the bags is selected at random and a draw of two balls is made at random from the bag thus selected, what is the probability that both the balls are white?
A. 51/90 B. 8/45 C. 45/49 D. 4/49

10. Arpit and Bipin pick up a ball at random from a bag containing 5 violet, 2 red and 3 orange balls one after the other, replacing it every time till one of them gets an orange ball and the one who gets an orange ball is declared a winner. If Arpit begins the game, then the probability of Bipin willing the game is
A. 10/17 B. 7/17 C. 7/10 D. 3/10

11. Two biased dice are thrown together. On one of them, 6 appears twice as often as any other number while on the other, an odd number appears thrice as frequently as an even number. What is probability that the sum of scores on them is 11 or 12?
A. 1/12 B. 9/29 C. 3/28 D. 5/12

PROBABILITY

12. Three bulb holders are fitted in a room. From a box containing 20 bulbs of which25% are fused,3 bulbs are taken at random and fitted into these bulb holders. What is the probability that the room is lighted?
A. 91/228 B. 113/114 C. 1/114 D. 137/228

13. A number is selected at random from all possible 4-digit numbers that are formed using the digits 0, 2, 5, 7. Given that the number is even, what is the probability that it divisible by 5?
A. 1/2 B. 1/3 C. 1/4 D. 1/5

14. Shreya participates in a game involving throwing 2 coins together, being promised Rs.35 if the coins show the same face value, else Rs.25. The coins are biased in such a way that one of them head appears twice as frequently as tail, while on the other, tail appears 1½ times as frequently as head. What is the maximum amount Shreya will be willing to pay as an entry fee, if in the long run, she wants to make an average profit of Rs. 15.
A. Rs. 29.66 B. Rs. 25.60 C. Rs. 14.66 D. Rs. 4.66

15. Kiran rotates a roulette wheel which has markings from 201 to 300. If the wheel stops at a multiple of 7, he wins Rs. 7000. If the wheel stops at a multiple of 13, he wins Rs. 13000 and if the wheel stops at a number which a multiple of both 7 and 13, he wins Rs. 91000. If Kiran has to pay an amount of 2700 every time he rotates the wheel as a participation fee, then, in the long run what is the average profit he makes per game?
A. Rs. 230 B. Rs. 200 C. Rs. 60 D. Rs. 30

16. A man bets on number 16 on a roulette wheel 14 times and losses each time. On the 15th span he does a quick calculation and finds out that the number 12 had appeared twice in the 14 spans and is therefore, unable to decide whether to bet on 16 or 12 in the 15th span. Which will give him the best chance and what are the odds of winning on the bet that he takes? (Roulette has numbers 1 to 36)
A. 16; 22:14 B. 2; 72:1 D. 12; 7:1 D. Either; 35:1

17. An anti aircraft gun can fire four shots at a time. If the probabilities of the first, second, third and the last shot hitting the enemy aircraft are 0.7, 0.6, 0.5 and 0.4, what is the probability that four shots aimed at an enemy aircraft will bring the aircraft down?
A. 0.084 B. 0.916 C. 0.036 D. 0.964

18. A number is selected at random from first thirty natural numbers. What is the chance that it is a multiple of either 3 or 13?
A. 17/30 B. 2/5 C. 11/30 D. 4/15

19. Shyam draws a card at random out of a deck, replaces it, and then draws another card at random. What is the probability that the first card is the ace of clubs and the second card is a club (any club)?
A. 1/221 B. 1/375 C. 2/221 D.13/221

20. 2 couples and a single man sit at random in a row of 5 chairs. What is the probabilty that neither of the couples sits together in adjacent chairs?
A. 1/5 B. ¼ C.3/8 d. 2/5

PROBABILITY

ANSWER KEY

1. **1:12**	**2. A. 1/3** **B. 2/21 or 5/21**	**3. 6.66**	**4. D**	**5. C**	**6. C**	**7. A**	**8. B**	**9. B**	**10. B**
11. C	**12. B**	**13. A**	**14. C**	**15. D**	**16. D**	**17. D**	**18. B**	**19. A**	**20. D**