MATHS

BOOKS - DEEPTI MATHS (TELUGU ENGLISH)

PROBABILITY

Solved Examples

1. Three persons A, B, and C are to speak at a function along with 7 other persons. If the persons speak in random order, the probability that A speak before B and B speak before C is

A. $\frac{3}{8}$

B. $\frac{1}{6}$

C. $\frac{3}{5}$

D. none

Answer: B

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2. There are 8 stations between two cities A and B. A train is to stop at three of these 8 stations. The probability that no two of these three stations are consecutive is

A. $\frac{7}{15}$

B. $\frac{5}{14}$

C. $\frac{7}{10}$

D. $\frac{5}{7}$

Answer: B

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3. There are 6 letters and 6 addressed envelopes . If the letters are put at random in the envelopes , the probability that all the letters may be placed in wrongly addressed envelopes is

A. $\frac{119}{120}$

B. $\frac{1}{120}$

C. $\frac{125}{144}$

D. $\frac{11}{120}$

Answer: C

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4. The first twelve letters of English alphabet are written at random in a line. The probability that there are exactly four letters in between A and B is

A. $\frac{5}{66}$

B. $\frac{7}{53}$

C. $\frac{3}{22}$

D. $\frac{7}{66}$

Answer: D

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5. suppose a sample space S consists of 4 elements , S = { $\alpha_1, \alpha_2, \alpha_3, \text{and} \alpha_4\}$, which function defines a probability function on S ?

A. $$P(\alpha_1) = \frac{1}{2}, P(\alpha_2) = \frac{1}{3}, P(\alpha_3) = \frac{1}{4}, P(\alpha_4) = \frac{1}{5}$$

B. $$P(\alpha_1) = \frac{1}{2}, P(\alpha_2) = \frac{1}{4}, P(\alpha_3) = \frac{1}{4}, P(\alpha_4) = \frac{1}{2}$$

C. $$P(\alpha_1) = \frac{1}{2}, P(\alpha_2) = \frac{1}{4}, P(\alpha_3) = \frac{1}{8}, P(\alpha_4) = \frac{1}{8}$$

D. $P(\alpha_1) = \frac{1}{2}, P(\alpha_2) = \frac{1}{4}, P(\alpha_3) = \frac{1}{8}, P(\alpha_4) = 0$

Answer: C

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6. The number of whole number between the smallest whole number and the greatest three digit number is

A. 1000

B. 999

C. 998

D. none

Answer: A

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7. Three squares of normal chess board are chosen. Th probability of getting 3 squares of same colour

A. $\frac{5}{21}$

B. $\frac{8}{21}$

C. $\frac{8}{64 \times 63 \times 62}$

D. none

Answer: A

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8. In a town 40% people read a news paper A, 30% people read another news paper B and 20% people read both. A person is chosen at random from the town. The probability that the person chosen read only one paper is

A. $1/4$

B. $2/3$

C. $1/3$

D. $3/10$

Answer: D

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9. At a selection , the probability of selection of A is 2/5 and that of B is 3/7. The probability that both of them would not be selected is

A. $6/35$

B. $9/35$

C. $12/35$

D. $16/35$

Answer: C

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10. An antiaircraft gun can take a maximum of three shots at an enemy plane moving away from it. The probabilities of hiting the plane at the first, second and third shot are 0.5, 0.3, 0.2 respectively. The probability that the gun hits the plane is

A. 0.72

B. 0.488

C. 0.6976

D. 0.784

Answer: A

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11. Three persons A,B,C in order cut a pack of cards replacing them after each cut. The person who first cuts a club shall win a prize. Find the probabilities of their winning.

A. 1/7, 3/7, 3/7

B. 4/7 , 2/7, 1/7

C. 16/37, 12/37, 9/37

D. 4/77, 3/77, 70/7

Answer: C

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12. Bag A contains 6 black and 5 white balls. Bag B contain 4 black and 7 white balls. A die is rolled . If 2 or 5 turns up , then choose bag A otherwise choose bag B. If one ball is drawn from the selected bag.The probability that it is black is

A. 20/39

B. 14/33

C. 34/89

D. 52/77

Answer: B

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13. A bag contains five balls. Three white balls and 2 black balls,2 balls are drawn at random . The probability that all 2 balls are white is

A. $1/2$

B. $3/10$

C. $1/4$

D. $4/6$

Answer: B

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Exercise 1 A

1. The probability of getting two heads when tossing five coins is

A. $1/2$

B. $3/8$

C. $5/16$

D. $7/128$

Answer: C

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2. The probability of getting exactly 2 tails in 6 tosses of a fair coin is

A. $3/8$

B. $1/4$

C. $15/64$

D. $49/64$

Answer: C

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3. The probability of getting atleast two heads, when tossing a coin three times is..........

A. $1/8$

B. $3/8$

C. $1/2$

D. $5/8$

Answer: C

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4. Six coins are tossed simultaneously . The probability of getting at least 4 heads is

A. $\frac{11}{64}$

B. $\frac{11}{32}$

C. $15/44$

D. $21/32$

Answer: B

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5. The probability of getting atmost 4 heads when tossing 7 coins is

A. $57/64$

B. $99/128$

C. $5/16$

D. $1/2$

Answer: B

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6. An unbaised coin is tossed five times. The odds in favour of getting atleast one tail is

A. $1:31$

B. $31:1$

C. $31:32$

D. $1:32$

Answer: B

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7. Six coins are tossed simultaneously . The odds in favour of getting 2 heads is

A. $10:11$

B. $6:5$

C. $5:3$

D. $15:49$

Answer: D

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8. Five coins whose face are marked 3, 4 are thrown. The chance of obtaining a total of 18 is

A. $1/32$

B. $1/16$

C. $3/16$

D. $5/16$

Answer: D

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9. An unbaiseed coin is tossed to get 2 points for tunring up a head and one point for the tail. If three unbaised coins are tossed simultaneously , then the probability of getting a total of odd number of points is

A. $1/2$

B. $1/4$

C. $1/8$

D. $3/8$

Answer: A

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10. A fair coin is tossed 100 times. The probability of getting tails an odd number of times is

A. $\frac{1}{2}$

B. $\frac{1}{4}$

C. $\frac{1}{8}$

D. $\frac{3}{8}$

Answer: A

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11. The probability that in a family of 4 children there will be atleast one boy is

A. $1/6$

B. $3/16$

C. $5/16$

D. $15/16$

Answer: D

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12. IF a die is rolled, then the probability of getting an even number is............

A. $1/6$

B. $1/2$

C. $5/36$

D. $2/36$

Answer: B

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13. The probability of getting a total of 10 in a single throw of two dice is

A. $1/9$

B. $1/12$

C. $1/6$

D. $5/36$

Answer: B

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14. The probability of getting a total score of 7 when two unbaised dice are thrown simultaneously is

A. $7/36$

B. $29/36$

C. $1/6$

D. $5/6$

Answer: C

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15. When two dice are thrown, the probability of getting equal number is..............

A. $1/6$

B. $1/2$

C. $1/18$

D. $5/36$

Answer: A

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16. When a die is rolled twice. The probability of getting doublets is

A. $1/6$

B. $1/36$

C. $1/26$

D. $1/16$

Answer: A

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17. Two dice are rolled simultaneously. The probability that the numbers on them are different is

A. $5/6$

B. $1/4$

C. $1/2$

D. $9/13$

Answer: A

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18. Two dice are thrown simultaneously . The probability of getting even numbers on both the dice is

A. $1/3$

B. $1/4$

C. $1/2$

D. $9/13$

Answer: B

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19. Two dice are rolled simultaneously . The probability of getting an even number and an odd number is

A. $5/6$

B. $1/4$

C. $1/2$

D. $9/13$

Answer: C

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20. Six faces of an unbaised die are numbered with 2,3,5,7,11 and 13. If two such dice are thrown , then the probability that the sum on the uppermost faces of the dice is an odd number is

A. $5/18$

B. $5/36$

C. $13/18$

D. 25/36

Answer: A

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21. In an experiment of rolling 2 dice, the probability that, the dots on the second die is less than that on the first die is

A. $5/12$

B. $7/12$

C. $11/36$

D. $13/34$

Answer: A

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22. Three dice are rolled simultaneously . The probability that the sum of the numbers on them is 6 is

A. $1/36$

B. $5/108$

C. $26/51$

D. $13/34$

Answer: B

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23. Three dice are rolled simultaneously. The probability that the sum of the numbers on them is 16 is

A. $1/36$

B. $5/108$

C. $26/51$

D. $13/34$

Answer: A

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24. When a die is rolled thrice. The probability of getting triplet is

A. $1/6$

B. $1/36$

C. $1/26$

D. $1/16$

Answer: B

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25. If three six faced dice are tossed together, then the probability that exactly two of the three numbers are equal is

A. $165/216$

B. $177/216$

C. $51/216$

D. $90/216$

Answer: D

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26. If three six faced dice are tossed together, then the probability that exactly two of the three numbers are equal is

A. $\dfrac{(k-1)(k-2)}{432}$

B. $\dfrac{k(k-1)}{432}$

C. $\dfrac{k^2}{432}$

D. none

Answer: A

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27. If three six faces fair dice are thrown together, then the probability that the sum of the numbers appearing on the dice is $(p \leq k \leq 14)$ is

A. $\dfrac{k^2 - 21k + 83}{216}$

B. $\dfrac{k^2 + 21k + 83}{216}$

C. $\dfrac{21k - k^2 - 83}{216}$

D. $\dfrac{21k - k^2 + 83}{216}$

Answer: C

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28. Six faces of a die are marked with numbers 1, -1, 0, -2, 2, 3 and the die is thrown thrice. The probability that the sum of the numbers thrown is six, is

A. $\frac{3}{216}$

B. $\frac{6}{216}$

C. $\frac{10}{216}$

D. $\frac{18}{432}$

Answer: C

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29. If four dice are thrown together, then the probability that the sum of the numbers appearing on them is 13, is

A. $\frac{5}{216}$

B. $\frac{11}{216}$

C. $\frac{35}{324}$

D. $\frac{11}{432}$

Answer: C

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30. Four tickets marked 00, 01, 10 , 11 respectively are placed in a bag. A ticket is drawn at random five times being replaced each time. The probability that the sum of the numbers on the tickets is 22 is

A. $2/7$

B. $25/256$

C. $231/256$

D. 0

Answer: B

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31. IF a card is drawn from a pack the probability that it is a king is

A. $1/13$

B. $1/4$

C. $9/13$

D. $1/2$

Answer: A

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32. When a card is drawn from a pack, the probability of getting a heart is

A. $1/13$

B. $1/4$

C. $9/13$

D. $1/2$

Answer: B

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33. Two cards are drawn from a pack. The probability of getting two hearts is

A. $1/4$

B. $1/13$

C. $1/221$

D. $1/17$

Answer: D

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34. If two cards are drawn from a well shuffled pack , the probability that atleast one of the two is heart is

A. $4/13$

B. $11/13$

C. $55/221$

D. $15/34$

Answer: D

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35. A bag contains 4 black balls and 6 red balls. One ball is drawn at random. The probability that it is red is

A. $5/8$

B. $3/5$

C. $1/2$

D. $1/56$

Answer: B

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36. When two balls are drawn from a bag containing 2 white, 4 red and 6 black balls, the chance for both of them to be red is...............

A. $1/11$

B. $6/11$

C. $3/11$

D. $4/12$

Answer: A

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37. A bag contains 5 white, 7 blacks and 4 red balls,3 are drawn at random . The probability that all the three balls are white is

A. $5/8$

B. $3/5$

C. $1/2$

D. $1/56$

Answer: D

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38. In a bag there are ten balls in which three are red. The probability that there will be atleast one red ball, in a draw of two balls is

A. $2/25$

B. $3/15$

C. $1/15$

D. $8/15$

Answer: D

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39. From a bag containing 3 red and 5 black balls. One ball is drawn at random. The odds against for getting a red ball are

A. $7:3$

B. $3:5$

C. $5:3$

D. $2:1$

Answer: C

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40. A bag contain 12 two rupee coins , 7 one rupee coins and 4 half rupee coins. If 3 coins are selected at random, then the probability that the sum of the 3 coins is maximum is

A. $\frac{{}^{4}C_{3}}{{}^{23}C_{3}}$

B. $\frac{{}^{12}C_{3}}{{}^{23}C_{3}}$

C. $\frac{12 \times 7 \times 4}{{}^{23}C_{3}}$

D. none

Answer: B

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41. A bag contains 12 two rupee coins, 7 one rupee coins and 4 half rupee coins. If 3 coins are selected at random , then the probability that the sum of the 3 coins is minimum is

A. $\frac{{}^{4}C_{3}}{{}^{23}C_{3}}$

B. $\frac{{}^{12}C_{3}}{{}^{23}C_{3}}$

C. $\frac{12 \times 7 \times 4}{{}^{23}C_{3}}$

D. none

Answer: A

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42. A coin and six faced die, both unbaised are thrown simultaneously . The probability of getting a head on the coin and an odd number on the die is

A. $1/2$

B. $3/4$

C. $1/4$

D. $2/3$

Answer: C

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43. Two cards are drawn from a pack. The probability that one of them is a club and the other is not a club is

A. $1/36$

B. $5/108$

C. $26/51$

D. $13/34$

Answer: D

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44. From a pack of 52 cards, two cards are drawn, the first being replaced before the second is drawn. The probability that the first is a diamond and the second is a king is

A. $1/4$

B. $4/13$

C. $1/52$

D. $1/104$

Answer: C

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45. Three mangoes and three apples are in a box. IF two fruits are chosen at random the probability that one is a mango and the other is an apple is..........

A. $3/5$

B. $5/6$

C. $1/36$

D. none

Answer: A

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46. Three balls are drawn at random from collection of 7 white, 12 green and 4 red balls, The probability that each ball is of different colours is..........

A. $\dfrac{48}{253}$

B. $\dfrac{64}{253}$

C. $\frac{23}{253}$

D. $\frac{56}{253}$

Answer: A

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47. There are two ums. Um A has 3 distinct red balls and um B has 9 distinct blue balls. From each um two balls are taken out at random and them transferred to the other . The number of ways in which this can be done is

A. 3

B. 36

C. 66

D. 108

Answer: D

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48. A bag contains 12 two rupee coins, 8 one rupee coins, and 4 half rupee coins. If 3 coins are selected at random, then the probability that each coins is of different value is

A. $\frac{{}^{4}C_3}{{}^{24}C_3}$

B. $\frac{{}^{12}C_3}{{}^{24}C_3}$

C. $\frac{12 \times 8 \times 4}{{}^{24}C_3}$

D. none

Answer: C

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49. If 6 cards are drawn at random, from a pack of cards, then the probability to get 3 red and 3 black cards is

A. $\dfrac{{}^{26}C_3 \times {}^{26}C_3}{{}^{52}C_6}$

B. $\dfrac{{}^{16}C_3 \times {}^{16}C_3}{{}^{32}C_6}$

C. $\dfrac{{}^{28}C_3 \times {}^{28}C_3}{{}^{56}C_6}$

D. none

Answer: A

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50. If 3 cards are drawn from a pack of cards, then the probability for the cards to be king, a queen and a jack is

A. $\frac{52}{{}^{32}C_3}$

B. $\frac{64}{{}^{52}C_3}$

C. $\frac{78}{{}^{52}C_3}$

D. $\frac{84}{{}^{52}C_3}$

Answer: B

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51. From a pack of cards, 2 cards are chosen at random. The probability of the event of having one card as 10 which is not heart and another a hearts card is

A. $1/34$

B. $1/102$

C. $8/663$

D. none

Answer: A

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52. A class has fifteen boys and five girls. Suppose three students are selected at random from the class. The probability that there are two boys and one girl is

A. $\frac{35}{76}$

B. $\frac{35}{38}$

C. $\frac{7}{76}$

D. $\frac{35}{72}$

Answer: A

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53. Seven balls are drawn simultaneously from a bag containing 5 white and 6 green balls. The probability of drawing 3 white and 4 green balls is

A. $\frac{7}{^{11}C_7}$

B. $\frac{^5C_3 + {}^6C_4}{^{11}C_2}$

C. $\dfrac{{}^5C_3 \cdot {}^6C_4}{{}^{11}C_7}$

D. $\dfrac{{}^6C_3 + {}^5C_4}{{}^{11}C_7}$

Answer: C

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54. Out of the first 25 natural numbers two are chosen at random. The probability for one of the numbers to be a multiple of 3 and the other to be a multiple of 5 is

A. $1/15$

B. $13/100$

C. $1/5$

D. $4/15$

Answer: B

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55. 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 the three apply for the same house is

A. $2/9$

B. $1/9$

C. $8/9$

D. $7/9$

Answer: B

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56. 3 out of 6 vertices of a regular hexagon are chosen at a time at random. The probability that the triangle formed with these vertices is an equilateral triangle , is

A. $\frac{1}{2}$

B. $\frac{1}{5}$

C. $\frac{1}{10}$

D. $\frac{1}{20}$

Answer: C

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57. If three people are chosen at random, then the probability that no two of them were born on the same day of the week is

A. $30/49$

B. $5/49$

C. $6/49$

D. $120/343$

Answer: A

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58. If four people are chosen at random, then the probability that no two of them were born in the same day of the week

A. $30/49$

B. $203/225$

C. $120/343$

D. $6/49$

Answer: C

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59. If three people are chosen ata random, then the probability that no two of them were born in the same date of the month of september is

A. $30/49$

B. $203/225$

C. $120/343$

D. $6/49$

Answer: B

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60. Four person entered the lift cabin on the ground floor of a 7 floor house. Suppose that each of them independently and with equal probability can leave the cabin at any floor beginning with the first. The probability of all 4 persons leaving at different floors is

A. $5/18$

B. $7/18$

C. $6/18$

D. none

Answer: A

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61. An elevator starts with m passengers and stops at n floors $(m \leq n)$ The probability that no two passengers alight at the same floor is

A. $\frac{{}^{n}P_{m}}{m^{n}}$

B. $\frac{{}^{n}P_{m}}{n^{m}}$

C. $\dfrac{{}^{n}C_{m}}{m^{n}}$

D. $\dfrac{{}^{n}C_{m}}{n^{m}}$

Answer: B

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62. The probability that in a group of a n people, atleast two of them will have the same, birthday is

A. $1-\dfrac{365!}{(365+n)!365^{n}}$

B. $1-\dfrac{365!}{(362-n)!365^{n}}$

C. $1-\dfrac{362!}{(362-n)!365^{n}}$

D. none

Answer: A

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63. The probability that a leap year have 53 sundays is...........

A. $1/7$

B. $2/7$

C. $5/7$

D. $6/7$

Answer: B

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64. The probability that a leap year will have 52 tuesdays is...........

A. $1/7$

B. $3/7$

C. $2/7$

D. 5//7`

Answer: D

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65. The probability that a non leap year will have 53 Wednesdays is

A. $1/7$

B. $2/7$

C. $5/7$

D. $6/7$

Answer: A

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66. The probability that a non leap year will have exactly 52 Mondays is

A. $1/7$

B. $2/7$

C. $5/7$

D. $6/7$

Answer: D

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67. The probability that the 13th day of a randomly chosen month is a Friday , is

A. $1/12$

B. $1/7$

C. $1/84$

D. none

Answer: C

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68. Card is drawn at random from a pocket of 100 cards numbered 1 to 100. The probability of drawing a number which is a cube is

A. $1/100$

B. $2/100$

C. $1/20$

D. $3/10$

Answer: C

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69. One number is selected at random from 1 to 900. The probability that it is a perfect square is

A. $1/10$

B. $2/5$

C. $3/10$

D. $1/30$

Answer: D

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70. The probability that a number selected at random from the set of numbers {1,2,3,....100} is a cube is

A. $1/25$

B. $2/25$

C. $3/25$

D. $4/25$

Answer: A

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71. S is a sample space $S = (x \in N : 1x \leq 100)$ and E= $(x : x(+ 1)(x - 1) \in S)$. Then P(E)=

A. $1/10$

B. $2/25$

C. $99/100$

D. $1/11$

Answer: A

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72. One number is selected at random from 1 to 100. The probability that it is a prime number is

A. $1/4$

B. $1/4$

C. $1/8$

D. $5/14$

Answer: B

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73. A card is taken out of a pack of 52 cards numbered 2 to 53. The probability that the number on the card is a prime less than 20 is............

A. $1/13$

B. $2/13$

C. $3/13$

D. $4/13$

Answer: C

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74. The probability of getting a number between 1 and 100 which is divisible by one and itself only is......

A. $27/185$

B. $23/97$

C. $25/98$

D. none

Answer: B

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75. A number n is chosen at random from (1,2,3,4,.......1000). The probability that n is a number that leaves remainder 1 when divided by 7 is

A. $\frac{71}{500}$

B. $\frac{143}{1000}$

C. $\frac{72}{500}$

D. $\frac{71}{1000}$

Answer: A

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76. A has 3 shares in a lottery containing 3 prizes and 6 blanks . B has two shares in a lottery containing 2 prizes and 6 blanks . The ratio of their chances of success is

A. $3/10$

B. $2/7$

C. $5/7$

D. $7/10$

Answer: D

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77. A has 3 shares in a lottery containing 3 prizes and 6 blanks . B has two shares in a lottery containing 2 prizes and 6 blanks . The ratio of their chances of success is

A. $952 : 715$

B. $274 : 659$

C. $113 : 907$

D. $64 : 39$

Answer: D

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78. Three electric lamps are fitted in a room. 3 bulbs are chosen at random from 10 bulbs having 6 good bulbs. The probability that the room is lighted is

A. $29/30$

B. $49/50$

C. $1/10$

D. $43/66$

Answer: C

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79. Five horses are in a race. Mr. A selects two of the horses at random and bets on them. The probability that Mr. A selected the winning horse is

A. $3/5$

B. $1/5$

C. $2/5$

D. $4/5$

Answer: C

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80. 5 boys and 5 girls sit in a row at random. The probability that the boys and girls sit alternatively is

A. $5/14$

B. $3/28$

C. $1/126$

D. $1/11$

Answer: D

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81. Six boys and six girls sit in a row at random. The probability that the boys and girls sit alternatively is

A. $1/14$

B. $1/21$

C. $1/28$

D. $1/462$

Answer: A

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82. 5 boys and 3 girls sit in a row at random. The probability that no two girls sit together is

A. $5/14$

B. $3/28$

C. $1/26$

D. $1/11$

Answer: A

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83. 7 boys and 3 girls sit in a row at random. The probability that no two girls come together is

A. $5/14$

B. $3/28$

C. $1/26$

D. $7/15$

Answer: D

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84. Seven white balls and three black balls are randomly arranged in a row. The probability that no two black balls are placed adjacently is

A. $\frac{1}{2}$

B. $\frac{7}{15}$

C. $\frac{2}{15}$

D. $\frac{1}{3}$

Answer: B

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85. 8 boys and 4 girls sit in a row at random. The probability that all the girls come together is

A. $1/55$

B. $3/28$

C. $1/26$

D. $1/11$

Answer: A

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86. 5 red balls and 4 black balls of different sizes are arranged in a row at random. The probability that no two balls of the same colour come together is

A. $1/126$

B. $5/14$

C. $5/42$

D. $1/21$

Answer: A

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87. 5 Engineering , 4 Mathematics and 2 Chemistry books are placed on a shelf at random. The probability that the books of each kind are all together is

A. $1/155$

B. $2/255$

C. $3/1255$

D. $1/1155$

Answer: D

Watch Video Solution

88. 5 boys and 5 girls sit around a round table at random. The probability that the boys and girls may sit alternatively is

A. $1/126$

B. $5/14$

C. $5/42$

D. $1/21$

Answer: A

Watch Video Solution

89. 6 boys and 4 girls sit around a table at random. The probability that all the girls sit together is

A. $1/126$

B. $5/14$

C. $5/42$

D. $1/21$

Answer: C

Watch Video Solution

90. 6 boys and 4 girls sit around a table at random. The probability that all the girls sit together is

A. $1/126$

B. $5/14$

C. $5/42$

D. $1/21$

Answer: D

Watch Video Solution

91. 7 red roses and 3 white roses of different sizes be strung in the form of a garland at random. The probability that no two white roses come together is

A. $1/12$

B. $5/12$

C. $5/4$

D. $1/21$

Answer: B

Watch Video Solution

92. If a party of a n persons sit at a round table, then the odds against two specified individuals sitting next to each other are

A. $2:n-3$

B. $n-3:2$

C. $n-2:2$

D. $2:n-2$

Answer: B

Watch Video Solution

93. Five digit numbers can be formed from the digits 1,2,3,4,5. If one number is selected at random , the probability that it is an even number is

A. $4/7$

B. $2/5$

C. $7/16$

D. $1/16$

Answer: B

Watch Video Solution

Watch Video Solution

94. One number is selected from the four digit numbers that can be formed from the digits 1,2,3,4,5,6,7. The probability that it is an odd number is

A. $4/7$

B. $2/5$

C. $7/16$

D. $1/16$

Answer: D

Watch Video Solution

95. A five digit number is formed by the digits 1,2,3,4,5 with no digit being repeated. The probability that the number is divisible by 4, is

A. $\frac{1}{5}$

B. $\frac{2}{5}$

C. $\frac{3}{5}$

D. $\frac{4}{5}$

Answer: D

Watch Video Solution

96. Five digit numbers can be formed by using 0,2,3,4,5,. One number is selected at random. The probability that it is a divisible by 5 is

A. $4/7$

B. $2/5$

C. $7/16$

D. $1/16$

Answer: C

Watch Video Solution

97. Five digit numbers can be formed by using 0,2,3,4,5,. One number is selected at random. The probability that it is a divisible by 5 is

A. $7/16$

B. $1/16$

C. $1/26$

D. $7/26$

Answer: A

Watch Video Solution

98. A ten digit number is formed using the digits from zero to nine, every digit being used exactly once. The probability that the number is divisible by 5 is

A. $14/81$

B. $15/81$

C. $16/81$

D. $17/81$

Answer: D

Watch Video Solution

99. A 4 digit number made of digits 1,2,3,4,5 is wirtten down at random without repetition. The probability that the number so formed is divisible by 6 is

A. $9/50$

B. $10/39$

C. $2/3$

D. $1/16$

Answer: A

Watch Video Solution

100. Two numbers a and b are chosen at random from the set of first 30 natural numbers. The probability that $a^2 - b^2$ is divisible by 3 is

A. $9/87$

B. $12/87$

C. $15/87$

D. $47/87$

Answer: D

Watch Video Solution

101. Two integers x and y are chosen with replacement out of the set {0,1,2,3,....10} Then the probability that $|x-y| > 5$ is

A. $81/121$

B. $30/121$

C. $25/121$

D. $20/121$

Answer: B

Watch Video Solution

102. Two numbers are chosen at random from (1,2,3,4,5,6,7,8) at a time. The probability that smaller of the two numbers is less than 4 is

A. $\frac{7}{14}$

B. $\frac{8}{14}$

C. $\frac{9}{14}$

D. $\frac{10}{14}$

Answer: C

Watch Video Solution

103. A book has 100 pages. If a page is opened at random, the probability for the page to have a two digited number with the same digits is

A. $9/100$

B. $1/50$

C. $1/110$

D. none

Answer: A

Watch Video Solution

104. 100 tickets are numbered as 00, 01, 02, ...09, 10, 11, ...99. When a ticket is drawn at random from then and if A is the event of getting 9 as the sum of the numbers on the ticket, then P(A) =

A. $9/100$

B. $1/10$

C. $11/100$

D. $3/25$

Answer: B

Watch Video Solution

105. One hundred cards are numbered from 1 to 100. The probability that a randomly chosen card has a digits 5 is

A. $\frac{1}{100}$

B. $\frac{9}{100}$

C. $\frac{19}{100}$

D. none

Answer: C

Watch Video Solution

106. 100 tickets are numbered as 00 ,01, 02, ...09, 10, 11....99. When a ticket is drawn at random from them and if b is the event of getting 0 as the product of the numbers on the ticket, then P(b) =

A. $19/100$

B. $1/5$

C. $21/100$

D. $11/50$

Answer: A

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107. If two numbers are selected randomly from 20 consecutive natural numbers, find the probability that the sum of the two numbers is (i) an even number (ii) an odd number.

A. $9/19$

B. $10/19$

C. $8/19$

D. $6/19$

Answer: A

Watch Video Solution

108. If two numbers are selected randomly from 20 consecutive natural numbers, find the probability that the sum of the two numbers is (i) an even number (ii) an odd number.

A. $9/19$

B. $10/19$

C. $8/19$

D. $6/19$

Answer: B

Watch Video Solution

109. Three integers are chosen at random without replacement from the first 20 integers. The probability that the product is odd is

A. $17/19$

B. $2/19$

C. ${}^{10}C_2/{}^{20}C_2$

D. none

Answer: B

Watch Video Solution

110. Three integers are chosen at random without replacement from the first 20 natural numbers. The probability that the product is even is

A. $2/19$

B. $14/19$

C. $15/19$

D. $17/19$

Answer: D

Watch Video Solution

111. The numbers 1,2,3,...n are arranged in a random order. The probability that the digits 1,2,3,.....,k($k < n$) appear as neighbours in that order is

A. $\frac{1}{n!}$

B. $\frac{k!}{n!}$

C. $\frac{(n-k)!}{n!}$

D. $\frac{(n-k+1)!}{n!}$

Answer: D

Watch Video Solution

112. The numbers 1,2,3,..n are arranged in a random order. The probability that the digits 1,2,3,....k$(k < n)$ appear as neighbours is

A. $\dfrac{(n-k)!}{n!}$

B. $\dfrac{n-k+1}{{}^nC_k}$

C. $\dfrac{n-k}{{}^nC_k}$

D. $\dfrac{k!}{n!}$

Answer: B

Watch Video Solution

113. Four numbers are chosen at random from (1,2,3,.....40) .

The probability that they are not consecutive is

A. $\frac{1}{2470}$

B. $\frac{4}{7969}$

C. $\frac{2469}{2470}$

D. $\frac{7965}{7969}$

Answer: C

Watch Video Solution

114. 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

Answer: C

Watch Video Solution

115. Three persons A, B, and C are to speak at a function along with 5 other persons. If the person speak in random order, the probability that A speaks before B and B speaks before C is

A. $3/8$

B. $1/6$

C. $3/5$

D. none

Answer: B

Watch Video Solution

116. A single letter is selected at random from the word PROBABILITY , the probability that it is a vowel is

A. $3/11$

B. $4/11$

C. $2/11$

D. $1/11$

Answer: B

Watch Video Solution

117. The letters of the word TRIANGLE are arranged at random. The probability that the word so formed starts with T and ends with R is

A. $2/8!$

B. $6/8!$

C. $1/28$

D. $1/56$

Answer: D

Watch Video Solution

118. The letters of the word EQUATION are arranged in a row at random. The probability that the consonents may be in the even places is

A. $\frac{1}{14}$

B. $5/7$

C. $1/7$

D. $5/28$

Answer: A

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119. The letters of the word VICTORY are arranged in a row at random. The probability that no two vowels may come together is

A. $\frac{1}{14}$

B. $5/7$

C. $1/7$

D. $5/28$

Answer: B

Watch Video Solution

Watch Video Solution

120. The letters of the word TUESDAY are arranged in a row at random. The probability that vowels may be in odd places

A. $4/35$

B. $5/28$

C. $1/7$

D. $1/30$

Answer: A

Watch Video Solution

121. The letters of the word MISSISSIPI are arranged in a row at random . The probability that all S's come together is

A. $4/35$

B. $5/28$

C. $1/7$

D. $1/30$

Answer: D

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122. The letters of the word SUCCESS are arranged in a row at random. The probability that no two S's may come together is

A. $2/7$

B. $1/7$

C. $3/7$

D. $1/5$

Answer: A

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123. The letter of the word QUESTION are arranged in a row at random. The probability that there are exactly two letters between T and N is

A. $1/14$

B. $5/7$

C. $1/7$

D. $5/28$

Answer: D

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124. The letters of the word THURSDAY are arranged in a row at random. The probability that there are exactly two letters between T and R is

A. $4/35$

B. $5/28$

C. $1/7$

D. $1/30$

Answer: B

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125. Fifteen person, among whom are A and B , sit down at random at a round table, the probability that there are exactly are 4 persons between A and B is

A. $1/7$

B. $2/7$

C. $3/7$

D. $4/7$

Answer: A

Watch Video Solution

126. There are 10 stations between two cities A and B . A train is to stop at three pf tjese 10 stations . The probability that no two of these three stations are consecutive is

A. $7/15$

B. $7/12$

C. $7/10$

D. $5/7$

Answer: A

Watch Video Solution

127. Out of 10 persons sitting at a round table, three persons A,B and C are selectyed at random. The chance that no two of these are sitting together is

A. $7/12$

B. $7/10$

C. $5/7$

D. $5/12$

Answer: D

Watch Video Solution

128. Two friends A and B have equal number of daughters of A and B . The probability that all the tickets go to daughters of A is 1/20.The number of daughters each of them have is

A. 4

B. 5

C. 6

D. 3

Answer: D

View Text Solution

129. If a number x is selected from natural numbers 1 to 100, then the probability for $x+100/x>29$ is

A. $41/50$

B. $39/50$

C. $47/50$

D. $37/50$

Answer: B

Watch Video Solution

130. The probability that the roots of the equation $x^2+nx+\frac{1}{2}+\frac{n}{2}$ = $0arereal, wheren$ in N$sucht^$n le5`, is

A. $1/5$`

B. $2/5$

C. $3/5$

D. $4/5$

Answer: C

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131. If an integer p is chosen at random in the interval $0 \leq p \leq 5$, the probability that the roots of the equation $x^2 + px + \frac{p}{4} + \frac{1}{2} = 0$ are real , is

A. $1/5$

B. $2/5$

C. $2/3$

D. $4/5$

Answer: C

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132. The probability of choosing randomly a number c from the set (1,2,3,....9) such that the quadratic equation $x^2 + 4x + c = 0$ has real roots is :

A. $1/9$

B. $2/9$

C. $3/9$

D. $4/9$

Answer: D

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133. In a room, there are 6 couples .Out of them if 4 are chosen at random the probability that they may be 2 couples is

A. $2/33$

B. $1/33$

C. $1/66$

D. $32/33$

Answer: B

Watch Video Solution

134. A team of 8 couples (husband and wife) attend a lucky draw in which 4 persons picked up for a prize. Then, the probability that there is atleast one couple is

A. $11/39$

B. $12/39$

C. $14/39$

D. $5/13$

Answer: D

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Watch Video Solution

135. There are 20 pairs of shoes in a closet. Four shoes are selected at random. The probability that there is exactly one pair is

A. $\frac{{}^{20}C_1 \times {}^{19}C_1}{{}^{40}C_4}$

B. $\frac{{}^{20}C_1 \times {}^{38}C_1}{{}^{40}C_4}$

C. $\frac{{}^{20}C_1 \times \left({}^{38}C_2 - {}^{19}C_1\right)}{{}^{40}C_4}$

D. $\frac{{}^{20}C_1 \cdot {}^{2}C_1}{{}^{40}C_4}$

Answer: C

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136. If 5 biscuits are distributed among 3 beggers, the chance that a particular beggar will get 2 biscuits is

A. $80/243$

B. $30/125$

C. $2/15$

D. $3/10$

Answer:

Watch Video Solution

137. If 10 sweets are to be distributed among 6 children, the probability that a particular child gets 4 sweets is

A. $\frac{{}^{10}C_4}{6^{10}}$

B. $\frac{{}^{10}C_4 \times 5^6}{6^{10}}$

C. $\frac{{}^{10} + 5^6}{6^{10}}$

D. $\frac{5^6}{6^{10}}$

Answer: A

Watch Video Solution

138. If 10 balls are to be distributed among 4 boxes, then the probability for the first box always to contain 4 balls is

A. $\frac{{}^{10}C_4 \times 3^6}{4^{10}}$

B. $\frac{{}^{10}C_4 \times 6^3}{4^{10}}$

C. $\frac{{}^{10}C_4}{4^{10}}$

D. none

Answer: B

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139. The probability that when 12 balls are distributed among three boxes, the first will contain three balls is

A. $\frac{2^9}{3^{12}}$

B. $\frac{{}^{12}C_3 \cdot 2^9}{3^{12}}$

C. $\frac{{}^{12}C_3 \cdot 2^{12}}{3^{12}}$

D. none

Answer: A

Watch Video Solution

140. A contest consists of predicting the result (win, draw and loss) 5 foot ball matches. The probability that an entry contains at least 3 correct answers is

A. $17/243$

B. $17/81$

C. $17/27$

D. $9/17$

Answer: B

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141. A letter lock contains 4 rings, each ring containing 5 letters. All possible trails are made to open the lock and the lock opens in only one way. The probability for the lock to open is

A. $1/20$

B. $1/625$

C. $1/1024$

D. $4/5$

Answer: B

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142. There are 5 letters and 5 addressed envelopes. If the letters are put at random in the envelopes, the probability that atleast one letter may be placed in wrongly addressed envelope is

A. $\frac{119}{120}$

B. $\frac{120}{343}$

C. $\frac{1}{1155}$

D. $\frac{139}{140}$

Answer: B

View Text Solution

143. There are 5 letters and 5 addressed envelopes. If the letters are put at random in the envelopes , the probability that all the letters may be placed in wrongly addressed envelopes is

A. $119 / 120$

B. $1 / 120$

C. $11 / 30$

D. $11 / 120$

Answer: A

View Text Solution

144. If four squares are chosen at random on a chess board, then the probability that they lie in a diagonal line is

A. $17/744$

B. $31/744$

C. $7/744$

D. $1/744$

Answer: C

Watch Video Solution

145. If four squares are chosen at random on a chess board, then the probability that they lie in a diagonal line is

A. $\frac{182}{{}^{64}C_4}$

B. $\frac{364}{{}^{64}C_4}$

C. $\frac{504}{{}^{64}C_4}$

D. $\frac{252}{{}^{64}C_4}$

Answer: C

Watch Video Solution

146. If 7 squares are chosen at random on a chess board, the probability that they lie on a diagonal line is

A. $\frac{10}{{}^{64}C_7}$

B. $\frac{12}{{}^{64}C_7}$

C. $\frac{20}{{}^{64}C_7}$

D. none

Answer: B

Watch Video Solution

147. Two squares of a chess board are chosen at random, the probability that two are of one colour

148. Three squares of a chess board are chosen at random, the probability that two are of one colour and one of another is

A. $16/21$

B. $8/21$

C. $32/12$

D. none

Answer: A

149. A determinant is chosen at random from the set of all determinants of order 2 with elements 0 or 1 only. The probability that the value of the determinant chosen is positive and nonzero

A. $3/8$

B. $\frac{3}{16}$

C. $1/8$

D. $1/16$

Answer: B

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150. A determinant is chosen at random from the set of all determinants of order 2 with elements 0 or 1 only. The probability that the determinant chosen is nonzero is

A. $3/8$

B. $\frac{3}{16}$

C. $1/8$

D. $1/16$

Answer: B

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151. The number of 3xx3` non-singular matrices, with four entries as 1 and all other entries as 0 is

A. less than 4

B. 5

C. 6

D. at least 7

Answer: A

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152. 3 out of 6 vertices of a regular hexagon are chosen at a time at random. The probability that the triangle formed with these vertices is an equilateral triangle , is

A. $1/2$

B. $1/5$

C. $1/10$

D. $1/20$

Answer: D

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153. A bag contains n white and n black balls. Pairs of balls are drawn until the bag is empty. The probability that each pair consists of one white and one black ball is

A. $\dfrac{2^n}{{}^{2n}C_n}$

B. $\dfrac{2^n}{n!}$

C. $\dfrac{{}^{2n}C_n}{2^n}$

D. none

Answer: C

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154. The number of subesets contining atmost 3 elements that can be picked out from a set of 8 elements is

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155. The number of subesets contining atmost 2 elements that can be picked out from a set of 8 elements is

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156. S is a set containing n elements. If two subsets A and B of S picked at random from the set of all subset of S. Then the probability that A and B have no common element.

A. $\frac{^{2n}C_n}{2^{2n}}$

B. $\left(\frac{3}{4}\right)^n$

C. $\frac{1}{^{2n}C_n}$

D. none

Answer: B

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157. A mapping is selected at random from the set of all the mappings of the set of A= {1,2,3,4,5} into itself. The probability that the mapping selected is a bijection is

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158. A mapping is selected at random from the set of all the mappings of the set of A= {1,2,3,4} into itself. The probability that the mapping selected is a bijection is

A. $\frac{1}{n^n}$

B. $\frac{1}{n!}$

C. $\frac{(n-1)!}{n^{n-1}}$

D. $\frac{n!}{n^{n-1}}$

Answer: C

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159. A mapping is selected at random from the set of all the mappings of the set of A= {1,2,3,4} into itself. The probability that the mapping selected is a bijection is

A. $\frac{1}{4^4}$

B. $\frac{1}{4!}$

C. $\frac{3!}{4^3}$

D. $\frac{1}{4}$

Answer: C

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160. Let A and B be two finite sets having m and n elements respectively such that $m > n$. A mapping is selected at random from the set of all mappings from A to B. The probability that the mapping selected is an injective mapping is

A. $\frac{n!}{(n-m)!m^n}$

B. $\frac{n!}{(n-m)!n^m}$

C. $\frac{m!}{(n-m)!n^m}$

D. none

Answer: D

View Text Solution

161. A binary operation is chosen at random from the set of all binary operations on a set A containing n elements. The probability that the binary operation is commutative is

A. $\dfrac{n^n}{n^n \hat{} (2)}$

B. $\dfrac{n^{n/2}}{n^n \hat{} (2)}$

C. $\dfrac{(n)^{n/2}}{n^{(n^2)/(2)}}$

D. none

Answer: C

View Text Solution

162. If three dice are thrown , the probability that they show the numbers in A.P is

A. $1/36$

B. $1/18$

C. $2/9$

D. $5/18$

Answer: B

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163. Out of (2n+1) tickets consecutively numbered , three are drawn at random . The chance that the numbers on them are in A.P is

A. $\dfrac{n}{n^2-1}$

B. $\dfrac{3n}{n^2-1}$

C. $\dfrac{3n}{4n^2-1}$

D. $\dfrac{3n}{4n^2+2n-1}$

Answer: C

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164. Out of 2n tickets numbered 1,2 .....2n, 3 are chosen at random. The probability that the numbers on them are in A.P is

A. $\dfrac{2}{2n-1}$

B. $\dfrac{2}{3(2n-1)}$

C. $\dfrac{3}{2n-1}$

D. $\dfrac{3}{2(2n-1)}$

Answer: D

View Text Solution

Exercise 1 B

1. If P(A) = 3/4 , P(B) = 2/5 , $P(A \cap B)$= 1/4 then $P(A \cup B)$=

A. $9/10$

B. $10/12$

C. $23/30$

D. $5/8$

Answer: A

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2. If A and B are two disjoint events such that P(A) = 2/7 , P(B)=3/5 then $P(A \text{ or } B)$=

A. $9/10$

B. $31/35$

C. $23/30$

D. $5/8$

Answer: B

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3. If A and B are two events such that $P(A)=1/4, P(B)=1/2, P(\cup B)=5/8$ then $P(A \cap B)$=

A. $3/8$

B. $1/8$

C. $2/8$

D. $5/8$

Answer: B

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4. If A and B are two events such that $P(A \cup B) = 0.65, P(A \cap B) = 0.15$ then $P(\overline{A}) + P(\overline{B})$=

A. 0.6

B. 0.8

C. 1.2

D. 1.4

Answer: C

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5. If $P(A \cup B) = 0.8, P(A \cap B) = 0.3$ then $P(\overline{A}) + P(\overline{B})$=

A. 0.9

B. 0.3

C. 0.7

D. 0.6

Answer: A

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6. The probability that at least one of the events A and B occurs is 0.7 and they occur simultaneously with probability 0.2 . Then $P(\overline{A}) + P(\overline{B})$=

A. 1.8

B. 0.6

C. 1.1

D. 1.4

Answer: C

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7. If P(A) =0.25 , P(B)=0.5, $P(A \cap B) = 0.14$ then $P(\overline{A} \cap \overline{B})$=

A. 0.2

B. 0.39

C. 0.5

D. 0.6

Answer: B

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8. If A,B are independent events $P(A \cap B) = 1/2, P(A) = p, P(B) = 2p,$ then the value of p is given by

A. $1/3$

B. $7/18$

C. $4/9$

D. $1/2$

Answer: D

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9. If A, B are two mutually exclusive events such that P(A)=0.5 ,P(B)=0.3 then $P(\overline{A} \cap \overline{B}) =$

A. 0.2

B. 0.39

C. 0.5

D. 0.6

Answer: A

Watch Video Solution

10. If $P(A) = 0.4, P(A \cup B) = 0.7$ and A, B are disjoint then P(B)=

A. 0.3

B. 0.5

C. 0.2

D. 0.25

Answer: A

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11. If A and B are events of a random experiment such that $P(A \cup B) = 4/5, P(\overline{A} \cup \overline{B}) = 7/(10)$ and P(B)=2/5 then P(A)=

A. $\frac{9}{10}$

B. $\frac{8}{10}$

C. $\frac{7}{10}$

D. $\frac{3}{5}$

Answer: C

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12. Suppose that A and B are two independent events such that $P(A \cap B) = \frac{3}{25}$ and $P(A) = \frac{8}{25}$ Then P(B) =

A. $\frac{11}{25}$

B. $\frac{3}{8}$

C. $\frac{1}{11}$

D. $\frac{9}{11}$

Answer: B

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13. When two dice are thrown , the probability of getting the sum 7 or 8 is

A. $7/36$

B. $1/4$

C. $\frac{11}{36}$

D. $1/12$

Answer: C

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14. When two dice are thrown , the probability of getting the sum 10 or 11 is

A. $7/36$

B. $5/36$

C. $5/18$

D. $7/18$

Answer: B

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15. Two fair dice are rolled. The probability of the sum of digits on their faces to be greater than or equal to 10 is

A. $1/5$

B. $1/4$

C. $1/8$

D. $1/6$

Answer: D

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16. Two dice are thrown simultaneously. The probability that the sum of the numbers on them is atleast 9 is

A. $11/36$

B. $1/6$

C. $11/12$

D. $5/18$

Answer: D

Watch Video Solution

17. Two dice are thrown simultaneously. The probability that the sum of the numbers on them is atleast 10 is

A. $11/36$

B. $1/6$

C. $11/12$

D. $1/54$

Answer: C

Watch Video Solution

18. If two dice are rolled then the probability that their sum is a prime number is

A. $5/12$

B. $5/6$

C. $5/36$

D. $2/5$

Answer: A

Watch Video Solution

19. When a pair of six faced fair dice are thrown, the probability that the sum of the numbers on the two dice is greater than 7 , is

A. $\frac{1}{3}$

B. $\frac{5}{12}$

C. $\frac{1}{2}$

D. $\frac{1}{4}$

Answer: B

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20. A and B throw with three dice. If A throws 16, then B's chance of throwing a greater number is

A. $1/36$

B. $5/54$

C. $11/12$

D. $1/54$

Answer: D

Watch Video Solution

21. Three dice are thrown simultaneously. The probability of getting a sum six or less is

A. $1/36$

B. $5/54$

C. $11/12$

D. $1/54$

Answer: B

Watch Video Solution

22. When 3 dice are thrown simultaneously, the probability that the sum on the three faces is greater than 16 is

A. $\frac{2}{54}$

B. $\frac{1}{54}$

C. $\frac{10}{6^3}$

D. $\frac{1}{6^3}$

Answer: B

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23. A bag contains 4 green , 6 black, and 7 white balls. A ball is drawn at random. The probability that it is either a black ball or a white ball is

A. $13/17$

B. $5/7$

C. $1/8$

D. $3/4$

Answer: A

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24. The probability for a contractor to get a road contract is $\frac{2}{3}$ and to get a building contract is $\frac{5}{9}$. The probability to get atleast on contract is $\frac{4}{5}$. Find the probability to get both the contracts.

A. $17/50$

B. $19/45$

C. $16/39$

D. $25/52$

Answer: B

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25. A card is drawn at random from normal pack of cards. The probability that it is either a spade and B or a queen is..........

A. $1/13$

B. $4/13$

C. $1/4$

D. $13/51$

Answer: B

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26. The probability of drawing a card which is at least a spade (or) a king from a well shuffled pack of cards is........

A. $1/13$

B. $4/13$

C. $1/4$

D. $13/51$

Answer: B

Watch Video Solution

27. A card is drawn at random from a normal pack of cards. The probability that it is either red or number card is

A. $4/13$

B. $11/13$

C. $55/221$

D. $15/34$

Answer: B

Watch Video Solution

28. From a pack two cards are drawn. The probability that it is either both are black or both are aces is

A. $4/13$

B. $11/13$

C. $55/221$

D. $15/34$

Answer: C

Watch Video Solution

29. If one ticket is randomly selected from, tickets numbered 1 to 30 then the probability that the number on the ticket is a multiple of 5 or 7 is

A. $1/3$

B. $2/3$

C. $4/3$

D. $5/3$

Answer: A

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30. The probability of choosing at random a number divisible by 6 or 8 from among 1 to 90 is

A. $1/6$

B. $11/90$

C. $1/30$

D. $23/90$

Answer: D

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31. When a die is thrown the probability of getting an even number or a multiple of 3 is

A. $1/2$

B. $1/3$

C. $1/6$

D. $2/3$

Answer: D

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32. In a committee of 25 members, each member is proficient either in Mathematics or in Statistics or in both.

If 19 of these are proficient in Mathematics, 16 in statistics, find the probability that a person selected from the committee is proficient in both.

A. 0.4

B. 0.8

C. 1.9

D. 0.2

Answer: A

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33. In a class there are 60 boys and 30 girls. In it, half of the boys and half of the girls have squint eyes. If a person is chosen at random , the probability for the person to be either a boy or a squint eyed person from girl

A. $1/4$

B. $1/8$

C. $5/6$

D. $3/4$

Answer: C

Watch Video Solution

34. In a class there are 60 boys and 30 girls . In it, half of the boys and half of the girls know cricket. The probability of a person selected from the class is either a boy or a girl who know cricket is

A. $5/6$

B. $8/7$

C. $5/7$

D. $7/5$

Answer: A

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35. The probabilities of two events A and B are 0.25 and 0.40 respectively. The probability that both A and b occur is 0.15. The probability that neither A nor B occurs is

A. 0.35

B. 0.65

C. 0.5

D. 0.75

Answer: C

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36. Out of 7 gentlemen and 4 ladies a committee of 5 is to be formed. The probability that the committee consists of atleast 2 ladies is

A. $43/66$

B. $31/42$

C. $13/41$

D. $3/10$

Answer: A

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37. A committee of five is to be chosen from a group of 9 people. The probability that a certain married couple will either serve together or not at all is

A. $1/2$

B. $5/9$

C. $4/9$

D. $2/3$

Answer: C

Watch Video Solution

38. Three groups of children contain 3 girls and one boy , 2 girls and 2 boys , one girl and 3 boys. One child is selected at random from each group . The probability that the three selected consist of 1 girl and 2 boys is

A. $13/32$

B. $19/32$

C. $13/19$

D. $6/19$

Answer: A

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39. A bag contains 3 white, 3 black, and 2 blue balls. 3 balls are drawn at random from the bag. The probability of drawing the three balls of the different colour is

A. $3/84$

B. $9/28$

C. $1/168$

D. none

Answer: B

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40. A letter is taken out at random from 'ASSISTANT' and another is taken out from 'STATISTICS' . The probability that they are the same letters is

A. $1/45$

B. $13/90$

C. $19/90$

D. none

Answer: C

Watch Video Solution

41. A six faced baised die when thrown shows an even number twice as compared to an odd number. If the die is thrown twice, the probability that the sum of the two numbers is even is

A. $5/9$

B. $4/9$

C. $3/9$

D. $2/9$

Answer: A

Watch Video Solution

42. The odds against an event are 5 to 2 and the odds in favour of another disjoint event are 3 to 5. Then the probability that one atleast of the event will happen is

A. $29/30$

B. $49/50$

C. $17/50$

D. $37/56$

Answer: D

Watch Video Solution

43. If A,B, and C are three events, then $P[A \cap (B \cup C)]$ =

A. $P(A) + P(B) + P(C) - P(A \cap B) - P(A \cap C)$

B. $P(A) + P(B) + P(C) - P(B)P(C)$

C. $P(A \cap B) + P(A \cap C) - P(A \cap B \cap C)$

D. $P(B \cap C) + P(A \cap B) - P(A \cup B \cap C)$

Answer: C

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44. If P(A) = 0.4, P(B)=0.5, P(C) =0.6, $P(A \cap B)$ = 0.2, $P(B \cap C)$ = 0.3, $P(C \cap A)$ = 0.25, $P(A \cap B \cap C) = 0.1$ then $P(A \cup B \cup C) =$

A. 0.1

B. 0.9

C. 0.85

D. 8

Answer: C

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45. The probabilities of three events A,B,C are such that P(A)=0.3, P(B)=0.04, P(C) = 0.8 $P(A \cap B) = 0.08$ $P(A \cap C) = 0.28$, $P(A \cap B \cap C) = 0.09$ and $P(A \cup B \cup C) \geq 0.75$. Show that $P(B \cap C)$ lies in the interval [0.23,0.48]

A. $\left[\frac{-1}{3}, \frac{1}{2}\right]$

B. $\left(\frac{-1}{2}, \frac{1}{2}\right)$

C. $\left[\frac{-1}{3}, \frac{2}{3}\right]$

D. $\left[\frac{-1}{2}, \frac{2}{3}\right]$

Answer: A

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46. If $\dfrac{1+3P}{3}, \dfrac{1-2P}{2}$ are probabilities of two mutually exclusive events, then P lies in the interval.

A. $[1/4, 1/3]$

B. $[1/3, 1/2]$

C. $[1/4, 1/2]$

D. $[1/3, 2/3]$

Answer: A

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47. If A Aand B independent $P(\overline{A}) = 2/3$, then $P(A \cap B)$ = 2//7 then P(B)

A. $2/7$

B. $7/12$

C. $6/7$

D. $1/7$

Answer: B

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48. In a class of 125 students, 70 passed in Mathematics, 55 in Statistics and 30 in both. The probability that a student selected at random from the class has passed in only one subject is

A. $13/25$

B. $3/25$

C. $17/25$

D. $8/25$

Answer: A

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49. In a town 40% people read Enadu, 25% people read Jyothi and 15% people read both. A person is chosen at random from the town. The probability that the person chosen read Enadu but not read jyothi is

A. $1/4$

B. $2/3$

C. $1/3$

D. $1/10$

Answer: A

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50. A bag contains 3 red, 4 white and 6 blue balls. 3 balls are drawn at random. The probability that they are of different colours is

A. $12/13$

B. $10/33$

C. $5/22$

D. $36/143$

Answer: D

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51. A bag contains 2 red, 3 black , 4 white balls. 2 balls are drawn at random . The probability that they are different colours is

A. $13/18$

B. $1/18$

C. $1/9$

D. $2/28$

Answer: A

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52. An urn contains nine balls of which three are red , four are blue and two are green. Three balls are drawn at random without replacement from the urn. The probability that the three balls have different colours is

A. $1/3$

B. $2/7$

C. $1/21$

D. $2/23$

Answer: B

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53. A and B are mutually exclusive events with P(A) = $\frac{1}{2}P(B)$ and $A \cup B$ = S, the sample space then P(A) =

A. $2/3$

B. $1/3$

C. $1/4$

D. $3/4$

Answer: B

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54. If S is a sample space, P(A) = $\frac{1}{3}P(B)$ and $S = A \cup B$, where A, B are two mutually exclusive events , then P(A) =

A. $1/4$

B. $1/2$

C. $3/4$

D. $3/8$

Answer: B

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55. Only one of the two events A and B must occur. If P(A) = $\frac{2}{3}P(B)$, the odds in favour of B are

A. $1:2$

B. $2:1$

C. $2:3$

D. $3:2$

Answer: A

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56. IF A,B,C are three mutually exclusive events of a trial such that P(A)=2P(B)=3P(C) then P(A)=.......

A. $1/3$

B. $2/5$

C. $3/8$

D. $6/11$

Answer: D

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57. If A, B, C are mutually exclusive and exhaustive events such that P(B) = $\frac{3}{2}P(A), P(C) = \frac{1}{3}P(B)$ then P(A) =

A. $1/3$

B. $1/2$

C. $3/4$

D. $1/4$

Answer: A

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58. If A,B,C are mutually exclusive and exhaustive events of a random experiment such that P(B) = $\frac{3}{2}P(A)$ and $P(C)=\frac{1}{2}P(B)$ then $P(A\cup C)$ =

A. $\frac{3}{13}$

B. $\frac{6}{13}$

C. $\frac{7}{13}$

D. $\frac{10}{13}$

Answer: C

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59. Two horses A and B run a race. If the probability of A's win is twice the B then the probability of B's win is

A. $1/2$

B. $1/3$

C. $1/5$

D. $1/7$

Answer: B

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60. Three horses A, B and C are in a race, A is twice as likely to win as B and B is thrice as likely to win as C. What are their probabilities of winning?

A. $6/10, 3/10, 1/10$

B. $4/7, 2/7, 1/7$

C. $5/10, 2/10, 3/10$

D. none

Answer: B

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61. Three students A,B,C are to take part in a swimming competition. The probabilities of A's winning or the probability of B's winning is 3 times the probability of C's winning. The probability of the event of either B or C to win is

A. $5/14$

B. $3/7$

C. $2/7$

D. $4/7$

Answer: D

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62. In a competition A, B and C are participating . The probability that A wins is twice that of B, the probability that B wins is twice that of C. Then the probability that A loses is

A. $1/7$

B. $2/7$

C. $4/7$

D. $3/7$

Answer: D

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Exercise 1 C

1. If P(A) = 2/5, $P(A \cap B) = 3/10$ then P(B|A) =

A. $1/3$

B. $3/5$

C. $3/4$

D. $1/4$

Answer: C

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2. If P(B) = 4/5, $P(A \cap B)$ = 3/10 then P(A|B)=

A. $1/3$

B. $3/5$

C. $1/2$

D. $3/8$

Answer: D

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3. If A and B are two events such that P(A) = 0.3 , P(B) =0.6 and P(B|A) = 0.5 , then P(A|B) =

A. $1/2$

B. $1/3$

C. $1/4$

D. $2/3$

Answer: C

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4. If A and B are mutually exclusive events with P(B) $\neq 1$ then $P(A \mid \overline{B})$ is equal to {Here $\overline{B}$ is the complement of the event B)

A. $\dfrac{1}{P(B)}$

B. $\dfrac{1}{1 - P(B)}$

C. $\dfrac{P(A)}{P(B)}$

D. $\dfrac{P(A)}{1 - P(B)}$

Answer: D

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5. If C and D are two events such that $C \subset D$ and P(D) $\neq 0$, then the correct statement among the following is

A. $1/3$

B. $1/4$

C. $2/3$

D. $3/4$

Answer: D

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6. E_1, E_2 are events of a sample space such that $P(E_1)=\frac{1}{4}$, $P\left(\frac{E_2}{E_1}\right)=\frac{1}{2}$, $P\left(\frac{E_1}{E_2}\right)=\frac{1}{4}$ then $P\left(\frac{\overline{E}_1}{E_2}\right)=$

A. $1/3$

B. $1/4$

C. $2/3$

D. $3/4$

Answer: B

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7. E_1, E_2 are events of a sample sapce such that $P(E_1)$ =1/4 , $P(E_2 \mid E_1) = 1/2, P(E_1 \mid E_2) = 1/4.$ Then $P(E_1 \mid E_2) + P\left(E_1 \mid \overline{E_2}\right)$=

A. $1/4$

B. $1/3$

C. $1/2$

D. $3/4$

Answer: C

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8. There are 20 cards , 10 of these cards have the letter 'I' printed on them and the other 10 have the letter 'T' printed on them. If three cards are picked up at random and kept in the same order, the probability of making word IIT is

A. $4/27$

B. $5/38$

C. $1/8$

D. $9/80$

Answer: B

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9. Suppose E and F are two events of a random experiment. If the probability of occurrence of E is $1/5$ and the probability of occurrence of F given E is $1/10$. Then the probability of non-occurance of atleast one of the events E and F is

A. $1/18$

B. $1/2$

C. $49/50$

D. $1/50$

Answer: C

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10. If A and B are two events such that P(A) = 0.3 , P(B) = 0.6 and P(B|A) = 0.5 , then $P(A \cup B)$ =

A. 0.5

B. 0.65

C. 0.75

D. 0.85

Answer: C

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11. If $P(\overline{A})$ = 0.7, P(B) = 0.7 and P(B|A) = 0.5, then P(A|B) =

A. $2/3$

B. $3/14$

C. $4/17$

D. $3/2$

Answer: B

Watch Video Solution

12. If $P(\overline{A})$ = 0.7, P(B) = 0.7 and P(B|A) = 0.5, then $P(A \cup B) =$

A. 0.5

B. 0.65

C. 0.75

D. 0.85

Answer: D

Watch Video Solution

13. If A and B are two events such that P(A|B) =0.6 , P(B|A)=0.3, P(A) = 0.1, then $P(\overline{A} \cup \overline{B}) =$

A. 0.88

B. 0.12

C. 0.6

D. 0.4

Answer: A

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14. Two events A and B are such that $P(A) = \frac{1}{4} P(A \mid B) = \frac{1}{4}$ and $P(B \mid A) = \frac{1}{2}$,

Consider the following statements:

I) $P(\overline{A} \mid \overline{B}) = \frac{3}{4}$ II) A and B are mutually exclusive III) $P(A \mid B) + P(A \mid B) = 1$, then

A. Only (I) is correct

B. Only (I) and (II) are correct

C. Only (I) and (III) are correct

D. Only (II) and (III) are correct

Answer: A

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15. Two dice are thrown at a time and the sum of the numbers on them is 6. The probability of getting the number 4 on any of the dice is

A. $2/5$

B. $1/5$

C. $2/3$

D. $1/3$

Answer: A

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16. If two dice are thrown simultaneously , then the sum of the numbers on them is 7. The probability that 3 is on any one of them is

A. $1/3$

B. $1/4$

C. $2/5$

D. $3/5$

Answer: A

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17. Out of numbers 1,2,3,....9, two numbers are chosen at random, so that their sum is an even number. The probability for the two chosen numbers to be odd is

A. $3/8$

B. $5/8$

C. $3/55$

D. $2/5$

Answer: B

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18. Three numbers are selected at random without replacement from the set of numbers {1,2,....n}. The conditional probability that the third number lies between the first two, if the first number is known to be smaller than the second is

A. $1/6$

B. $1/3$

C. $1/2$

D. none

Answer: B

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19. A box contains 100 tickets, numbered 1,2,....100. Two tickets are chosen at random . It is given that the maximum number on the two chosen tickets is not more than 10. The minimum number of them is 5 with probability

A. $\frac{11}{15}$

B. $13/15$

C. $13/17$

D. $13/19$

Answer: B

Watch Video Solution

20. Three numbers are chosen at random without replacement from {1,2,3,....8}. The probability that their minimum is 3, given that their maximum is 6, is

A. $\frac{1}{4}$

B. $\frac{2}{5}$

C. $\frac{3}{8}$

D. $\frac{1}{5}$

Answer: D

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21. For a biased die the probability for different faces to turn up are given below.

Face	1	2	3	4	5	6
Probability	0.1	0.32	0.21	0.15	0.05	0.17

The die is tossed and you are told either face 1 or 2 has turned up. Then the probability that it is face 1 is

A. $5/21$

B. $6/23$

C. $5/23$

D. none

Answer: A

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22. In a bag there are 6 red, 4 black balls. From it 2 balls (without replacement) are drawn. If the first drawn ball is known to be red, the probability for the second drawn ball is also red is

A. $5/9$

B. $5/18$

C. $1/3$

D. $2/3$

Answer: C

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23. In a class , 40% students study History, 25% Civics and 15% both History and Civics. A student from the class is selected at random . The probability that he studies history, if it is known that he studies civics is

A. $3/8$

B. $1/8$

C. $3/5$

D. $2/5$

Answer: C

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24. One ticket is selected at random from 100 tickets numbered 00, 01, 02, ...99. Suppose A and B are the sum and product of the digits found on the ticket. Then P(A=7|B=0) is given by

A. $2/13$

B. $2/19$

C. $1/50$

D. none

Answer: B

Watch Video Solution

25. One ticket is selected at random from 50 tickets numbered 00, 01, 02, ...49. Then the probability that the sum of the digites on the selected ticket is 8, given that the product of these digits is zero, equals

A. $\frac{1}{7}$

B. $\frac{5}{14}$

C. $\frac{1}{50}$

D. $\frac{1}{14}$

Answer: D

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26. A box contains 10 mangoes out of which 4 are spoiled. 2 mangoes are taken together at random. If one of them is found to be good, then the probability that the other is also good, is

A. $1/3$

B. $8/15$

C. $5/13$

D. $2/3$

Answer: C

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27. If A, B are two independent events such that P(A) = 3/4, P(B) =2/5 then $P(A \cup B) =$

A. $17/20$

B. $5/6$

C. $7/10$

D. $9/10$

Answer: A

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28. If A,B are two independent events such that P(A) = 0.5, $P(\overline{B}) = 0.3$ then $P(A \cap B) =$

A. 0.55

B. 0.2

C. 0.4

D. 0.35

Answer: D

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29. If P(A) = 0.4, $P(A \cup B) = 0.8$ and A,B are independent then P(B)=

A. 0.2

B. 0.3

C. 0.5

D. 0.6

Answer: D

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30. If A and B are two independent events such that P(B) = 2/7, $P(A \cup B) = 0.8$, then P(A)=

A. 0.7

B. 0.2

C. 0.3

D. 0.4

Answer: A

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31. If A and B are two independent events such that $P(\overline{A} \cap B) = 2/15$ and $P(A \cap \overline{B}) = 1/16$ then P(B)=

A. $1/5$ or $5/6$

B. $1/6$ or $4/5$

C. $1/4$ or $5/6$

D. $1/3$ or $3/5$

Answer: B

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32. If A and B are two independent events of a random experiment such that $P(A \cap B) = \frac{1}{6}$ and $P(\overline{A} \cap \overline{B}) = \frac{1}{3}$, then P(A)=

A. $1/4$

B. $1/3$

C. $1/2$

D. $2/3$

Answer: B,C

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33. If E_1, E_2 are independent events in a random experiment with $P(E_1 \cap E_2) = 1/8$, $P(\overline{E}_1 \cap \overline{E}_2) = 3/8$, then $P(E_1), P(E_2) =$

A. $1/2, 1/4$

B. $1/4, 1/6$

C. $1/8, 1/4$

D. $1/12, 1/14$

Answer: A

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34. If $E_1, E_2,$ are independent events, such that $P(E_1 \cap E_2) = 1/4, P(\overline{E}_1 \cap \overline{E}_2) = 1/4,$ then $P(E_1) + P(E_2) =$

A. 1

B. $1/3$

C. $1/4$

D. $1/9$

Answer: A

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35. If $E_1, E_2,$ are independent events, such $P(E_1 \cap E_2) = 1/8, P(\overline{E}_1 \cap \overline{E}_2) = 1/4,$ then $P((E_1 + P(E_2) =$

A. $1/25$

B. $25/32$

C. $1/40$

D. $1/9$

Answer: B

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36. A and B are two candidates seeking admission in IIT. The probability that A is selected is 0.5 and the probability that both A and B are selected is at most 0.3. Then

A. $0 \leq P(B) \leq 0.3$

B. $0 \leq P(B) \leq 0.6$

C. $0.3 \leq P(B) \leq 0.9$

D. $0.6 \leq P(B) \leq 0.9$

Answer: B

View Text Solution

37. Let A and B be two events such that $P(\overline{\text{A cap B}}) = 1/6$, $P(A \cap B) = 1/4$ and $P(\overline{A}) = 1/4$, then events A and B are

A. equally likely mutually exclusive

B. equally likely but not independent

C. mutually exclusive and independent

D. independent but not equally likely

Answer: D

Watch Video Solution

38. If A and B are events such that $P(A \cup B) = \frac{5}{6}, P(\overline{A}) = \frac{1}{4}$ and $P(B) = \frac{1}{3}$, then A and B are

A. mutually exclusive

B. independent

C. exhaustive events

D. exhausive and independent

Answer: B

Watch Video Solution

39. Let two fair six-faced dice A and B be thrown simultaneously . If E_1 is the event that die A shows up four , E_2 is the event that die B shows up two E_3 is the event that the sum of numbers on both dice is odd, then which of the following statements is not true ?

A. E_1 and E_2 are independent

B. $E_2 \text{ and } E_3$ are independent

C. $E_1 \text{ and } E_3$ are independent

D. $E_1, E_2 \text{ and } E_3$ are independent

Answer: D

Watch Video Solution

40. If A(i=1,2,3....n) are n independent events with P(A) = $\frac{1}{1+i}$ for each i , then the probability that none of A, occur is :

A. $\frac{n-1}{n+1}$

B. $\frac{n}{n+1}$

C. $\frac{n}{n+2}$

D. $\frac{1}{n+1}$

Answer: D

Watch Video Solution

41. The probabilities of a problem being solved by two students are $\frac{1}{2}$ and $\frac{1}{3}$. The probability of the problem being solved is.........

A. $2/3$

B. $4/3$

C. $1/3$

D. 1

Answer: A

Watch Video Solution

42. The probability that A can solve a problem is 2/3 and that B can solve it is 3/4.If both attempt the problem, what is the probability that the problem gets solved ?

A. $11/12$

B. $7/12$

C. $5/12$

D. $9/12$

Answer: A

Watch Video Solution

43. At a selection, the probability of selection of A is 1/7 and that of B is 1/5. The probability that atleast one of them would be selected is

A. $11/35$

B. $16/35$

C. $24/35$

D. `32//35

Answer: A

Watch Video Solution

44. The probability that a boy will get a scholarship is 0.9 and that a girl will get is 0.8. What is the probability none of them will get the scholarship is

A. 0.02

B. 0.89

C. 0.43

D. 0.34

Answer: A

Watch Video Solution

45. If the probability for A to fail in one exam is 0.2 and that for B is 0.3 , then the probability that either A or B fails is

A. 0.14

B. 0.6

C. 0.44

D. 0.24

Answer: C

Watch Video Solution

46. The probability that a man will live 10 more years is 1/4 and the probability that his wife will live 10 years is 1/3. Then the probability that neither will be alive in 10 more years is

A. $5/12$

B. $1/2$

C. $7/12$

D. $11/12$

Answer: B

Watch Video Solution

47. A man and a woman appear in an interview for vacancies in the same post. The probability of man's selection is 1/4 and that of the woman's selection is 1/3. The probability that none of them will be selected is

A. $1/2$

B. $1/3$

C. $1/4$

D. $1/5$

Answer: A

Watch Video Solution

48. A and B are two independent events such that the probability of the both the events to occurs is $\frac{1}{6}$ and the probability of both the events do not occur is $\frac{1}{3}$. Find the probability of A.

A. $1/6$

B. $1/5$

C. $1/2$ or $1/3$

D. $2/5$

Answer: C

Watch Video Solution

49. A and B are two independent events. If the probability that both A and B occur is 1/20 and the probability that neither of them occurs is 3/5, then P(A)+P(B)=

A. 9\20

B. 3\20

C. 7\20

D. none

Answer: C

Watch Video Solution

50. A problem is EAMCET examination is given to 3 students A, B, and C whose chances of solving it are 1/2, 1/3 , and 1/4 respectively. The probability that the problem will be solves is

A. $3/4$

B. $1/24$

C. $1/4$

D. 23/24

Answer: A

Watch Video Solution

51. The probabilities of solving a problem by three students A,B,C independently are $\frac{1}{3}, \frac{1}{4}, \frac{1}{5}$. The probability that the problems will be solved is.........

A. $1/60$

B. 36/60

C. 48/60

D. 57/60

Answer: B

Watch Video Solution

52. The probabilities of a problem being solved by three students are 1/3 , 1/4 and 1/6 . The probability of the problem being solved is

A. $2/3$

B. $11/12$

C. $7/12$

D. $10/11$

Answer: C

Watch Video Solution

53. A,B,C are 3 newspaper from a city. 20% of the population red A, 16% read B, 14% read C, 8% both A and B, 5% both A and C, 4% both B and C, 2% all the three. Find the percentage of the populations who read atleast one newspaper.

A. $25\ \%$

B. $30\ \%$

C. $35\ \%$

D. $40\ \%$

Answer: C

Watch Video Solution

54. The odds against A solving a problem are 8 to 6 and the odds in favour of B solving the same problem are 14 to 10. Then the probability that the problem will be solved if both of them try the problem is

A. 16/21

B. 52/77

C. $11/15$

D. $1/5$

Answer: A

Watch Video Solution

55. The odds against A solving a problem are 3 to 2 and the odds in favour of B solving the same problem are 5 to 4. Then the probability that the problem will be solved if both of them try the problem is

A. $16/21$

B. $52/77$

C. $11/15$

D. $1/5$

Answer: C

Watch Video Solution

56. The probability of drawing two black balls in successsion from a bag containing 4 red and 3 black balls when the ball that is drawn first is replaced is

A. $1/7$

B. $9/49$

C. $16/49$

D. $12/49$

Answer: B

Watch Video Solution

57. The probability of drawing two red balls in succession from a bag containing 3 red balls and 4 black balls when the ball that is drawn is replaced is

A. $9/49$

B. $1/7$

C. $1/6$

D. $16/81$

Answer: A

Watch Video Solution

58. A bag containing 2 white, 3 black and 4 green balls. If 2 balls are drawn from it, one after another with replacement then the probability that the first one is white and the second one is black is

A. $5/27$

B. $1/9$

C. $2/27$

D. $4/27$

Answer: C

Watch Video Solution

59. There are 7 red, and 3 white marbles in an um. If 3 marbles are randomly drawn from it, one after another, then the probability for the first 2 being, and the third being white is

A. $5/6$

B. $7/40$

C. $29/40$

D. $10/39$

Answer: B

Watch Video Solution

60. Bag A contains 4 white, 3 black balls. Bag B contains 3 white and 5 black balls. One ball is drawn from each bag. The probability that both are black is

A. $3/14$

B. $15/56$

C. $29/56$

D. $4/5$

Answer: B

Watch Video Solution

61. A bag contains 6 white and 4 black balls. Two balls are drawn at random. The probability that they are of the same colour is

A. $1/15$

B. $2/5$

C. $4/15$

D. $7/15$

Answer: D

Watch Video Solution

62. Bag A contains 4 white, 3 black balls. Bag B contains 3 white ad 5 black balls. One ball is drawn from each bag. The probability that one is white and one is black is

A. $3/14$

B. $15/56$

C. $29/56$

D. $4/5$

Answer: C

Watch Video Solution

63. Three faces of a fair die are yellow, two faces red and one blue. The die is tossed 3 times. The probability that the colours, yellow, red and blue appear in the first, second and the third tosses respectively is

A. $1/2$

B. $1/36$

C. $6/36$

D. $5/36$

Answer: B

Watch Video Solution

64. A card is drawn from a pack at random. After noting the card it is replaced and the pack is well shuffled . Again if a card is drawn , the probability of getting a card of clubs in the first draw and not a queen card in the second draw is

A. $3 / 13$

B. $1 / 13$

C. $1 / 16$

D. $3 / 36$

Answer: A

View Text Solution

65. Two cards are drawn successively with replacement from a well shuffled pack of 52 cards. The probability of drawing two aces is

A. $1/169$

B. $1/221$

C. $1/2652$

D. $4/663$

Answer: A

Watch Video Solution

66. The probability that India wins a cricket match against England is given to be 1/3.If India and England play 3 matches , what is the probability that India wll loose all the three matches is

A. $8/27$

B. $6/27$

C. $9/27$

D. $1/27$

Answer: A

Watch Video Solution

67. If four whole numbers taken at random are multiplied together. Then the chance that the last digit in the product is 1 or 3 or 7 or 9 is

A. $16/625$

B. $609/625$

C. 323/625

D. none

Answer: A

Watch Video Solution

68. Four positive integers are taken at random and are multiplied together. Then the probability that the product ends in an odd digit other than 5 is

A. 609/625

B. 16/625

C. $2/5$

D. $3/5$

Answer: B

Watch Video Solution

69. If n positive integers are taken at random and multiplied together, the probability that the last digit of the product is $2, 4, 6$, or 8 is

A. $\dfrac{5^n - 3^n}{5^n}$

B. $\dfrac{4^n - 2^n}{5^n}$

C. $\dfrac{3^n - 2^n}{5^n}$

D. $\dfrac{3^n - 2^n}{4^n}$

Answer: A

View Text Solution

70. The probability that an event A happens in one trial of an experiment is 0.4. Three independent trials of the experiment are performed. The probability that the event A happens atleast once is

A. 0.936

B. 0.784

C. 0.904

D. none

Answer: B

Watch Video Solution

71. The probability than an event does not happen in one trail is 0.8. The probability that the event happens atmost once in three trails is

A. 0.896

B. 0.791

C. 0.642

D. 0.592

Answer: A

Watch Video Solution

72. Numbers are selected at random one at a time from the two digit numbers 00, 01, 02, 03 ....99 with replacement . An event E occurs if the product of the 2 digits of a selected number is 18. If four numbers are selected, the probability that the event E occurs atleast 3 times is

A. $94/25^4$

B. $95/25^4$

C. $96/25^4$

D. $97/25^4$

Answer: D

Watch Video Solution

73. The odds in favour of A winning a game of chess against B are 5:2. If three games are to be played , then the odds in favour of A's winning at least one game are

A. $335 : 8$

B. $8 : 335$

C. $335 : 343$

D. none

Answer: A

Watch Video Solution

74. The probability of winning in a lottery is 0.15. If 4 tickets are purchased in the lottery, the probability of the event winning atleast one ticket is

A. 0.478

B. $3/80$

C. 0.6

D. 0.522

Answer: A

Watch Video Solution

75. Fifteen coupons are numbered 1,2,3....15 respectively. Seven coupons are selected at random one at a time with replacement .The probability that the largest number appearing on a selected coupon is atmost 9 is

A. $(9/16)^6$

B. $(8/15)^7$

C. $(3/5)^7$

D. $(9/14)^7$

Answer: C

Watch Video Solution

76. A student appears for test I, II and III. The student is successful if he passes, either in tests I and II or tests I and III. The probabilities of the student passing in tests I, II and III are p, q and 1/2 respectively . If the probability that the student is successful is 1/2 then

A. p=q=1

B. p=q=1/2

C. p=1, q=0

D. none

Answer: C

Watch Video Solution

77. An antiaircraft gun can take maximum of three shots at an enemy plane moving away from it. The probabilities of hitting the plane at the first , second and third shot are 0.5. 0.4 , 0.3 respectively. The probability that the gun hits the plane is

A. 0.79

B. 0.488

C. 0.6976

D. 0.784

Answer: A

Watch Video Solution

78. Mr. A is called for 3 interviews . There are 5 condidate at the first interview , 4 at the second and 6 at the third. If the selection of each candidate is equally likely then the probability that A will be selected for atleast one post is

A. $1/2$

B. $1/3$

C. $1/4$

D. $1/9$

Answer: A

Watch Video Solution

79. The probability that a teacher will give an unannounced test during any class meeting is 1/5. If a student is absent twice , then the probability that the students will miss at least one test is

A. $4/5$

B. $2/5$

C. $1/5$

D. $9/25$

Answer: D

Watch Video Solution

80. A,B,C are aiming to shoot a balloon. A will succeed 4 times out of 5 attempts. The change of B to shoot the balloon is 3 out of 4 and that of C is 2 out of 3. If three aim the balloon simultaneously, then find the probability that atleast two of them hit the balloon.

A. $8/9$

B. $1/16$

C. $5/6$

D. $1/9$

Answer: C

Watch Video Solution

81. India plays two matches each with West Indies and Australia . In any match the probabilities of India getting points, 0,1 and 2 are 0.45, 0.05 and 0.50 respectively . Assuming that the outcomes are independent , the probability of getting atleast 7 points is

A. 0.875

B. 0.0875

C. 0.0625

D. 0.025

Answer: B

Watch Video Solution

82. A multiple choice examination has 5 questions . Each question has three alternative answers of which exactly one is correct . The probability that a student will get 4 or more correct answers just by guessing is :

A. $1/3$

B. $1/5$

C. $3/5$

D. $1/15$

Answer: B

Watch Video Solution

83. A: If the probabilities of A and B to pass the examination are $2/10, 3/10$ then the probability that only one of them to pass the examination is $19/50$.

R: If A, B are two events then P(A-B) = P(A)-P($A \cap B$).

A. $41/50$

B. 47/50

C. 19/50

D. 37/50

Answer: C

Watch Video Solution

84. If the probability 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

Answer: B

Watch Video Solution

85. The probability of A solving a problem is 0.3 and the probability of B solving the problem is 0.6 . The probability that A solves the problem and B does not solve it is

A. 0.1

B. 0.2

C. 0.3

D. 0.12

Answer: D

Watch Video Solution

86. The probability that A speaks truth is 4/5 , while this probability for B is 3/4 . The probability that they contradict each other when asked to speak on a fact is

A. $3/20$

B. $4/5$

C. $7/20$

D. $1/5$

Answer: C

Watch Video Solution

87. A speaks truth in 80% of the cases and B in 60% of the cases. The percentage of the cases of which they likely to contracdict each other in stating the same fact is

A. $44\ \%$

B. $55\ \%$

C. $80\ \%$

D. $20\ \%$

Answer: A

Watch Video Solution

88. A speaks the truth in 75% of the cases , B in 80% cases. What is the probability that their statements about an incident do not match ?

A. $\frac{7}{20}$

B. $\frac{3}{20}$

C. $\frac{2}{7}$

D. $\frac{5}{7}$

Answer: A

Watch Video Solution

89. For a student the probability of getting a pass in one paper is 75% and the probability of getting a pass in another paper is 60% . The probability for the student to pass in one paper of the two papers) only is

A. $3/10$

B. $13/20$

C. $11/20$

D. $9/20$

Answer: D

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90. 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 the faulty machines are identified . The the probability that only two tests are needed is

A. $1/3$

B. $1/6$

C. $1/2$

D. $1/4$

Answer: A

Watch Video Solution

91. Two person A , B in order cut a pack of cards replacing them after each out. The person who first cuts a club shall prize. The probabilities of their winning are

A. $1/7, 3/7$

B. $4/17, 3/17$

C. $4/17, 3/17$

D. $4/77, 3/77$

Answer: B

View Text Solution

92. Two persons A and B toss a die. The person who first throws 6 first throws 6 wins . If A starts, then the probability of his winning is

A. $1/2$

B. $5/11$

C. $6/11$

D. $10/11$

Answer: C

Watch Video Solution

93. Two persons A and B are rolling die on the condition that the person who gets 3 will win the game. If A starts the game, then find the probabilities of A and B respectively to win the game.

A. $\frac{6}{11}, \frac{5}{11}$

B. $\frac{5}{11}, \frac{6}{11}$

C. $\frac{8}{11}, \frac{3}{11}$

D. $\frac{3}{11}, \frac{8}{11}$

Answer: A

Watch Video Solution

94. Three persons A, B ,C in order toss a die. The person who first throws 1 or 2 wins. The ratio of the probabilities of their success is

A. $4:6:9$

B. $6:9:4$

C. $9:4:6$

D. $9:6:4$

Answer: D

View Text Solution

95. A,B,C are tossing a coin on the condition that , the person who gets a Head first, wins the game. If A starts the game, then the probabilities of A, B and C to win the game are

A. $4/7, 2/7, 1/7$

B. $2/5, 1/5, 2/5$

C. $2/7, 3/7, 2/7$

D. $1/5, 3/5, 1/5$

Answer: A

Watch Video Solution

96. The person, A in order toss a die. The person who throws 5 or 6 wins. The probabilities of his winning is

A. 1/3

B. $\frac{1}{6}$

C. 1/4

D. 2/3

Answer: A

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97. 2 white balls and 3 blanks balls and 3 blank balls are placed in a bag and three men draw a ball in succession (the balls drawn not being replaced) until a white ball is drawn. The ratio of their respective chances is

A. $5 : 3 : 2$

B. $4 : 1 : 2$

C. $4 : 2 : 1$

D. $3 : 2 : 5$

Answer: A

View Text Solution

98. Three white balls and five blacks balls are placed in a bag and three men draw a ball in succession (the balls drawn not being replaced) until a white ball is drawn. The ratio of their respective chances is

A. $27 : 18 : 11$

B. $11 : 18 : 27$

C. $18 : 11 : 27$

D. $18 : 27 : 11$

Answer: A

View Text Solution

99. A bag contains 6 white and 4 black balls. Two ball are drawn at random. The probability that they are of the different colour is

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100. A fair die is thrown until a score of less than five points is obtained . The probability of obtaining not less than two points on the last throw is

A. $3/4$

B. $4/5$

C. $5/6$

D. $1/3$

Answer: A

Watch Video Solution

101. A man throws a die until he gets a number bigger than 3. The probability that he gets another 5 in last throw

A. $1/2$

B. $1/3$

C. $2/3$

D. $3/5$

Answer: B

Watch Video Solution

102. On a toss of two dice, A throws a total of 5. Then the probability that he will throw another 5 before he throws

7 is

A. $1/9$

B. $1/6$

C. $2/5$

D. $5/36$

Answer: C

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103. A and B throw a pair of dice. A wins if the throws 6 before B throws 7 and B wins if he throws 7 throws 6. If A begins, his chance of winning is

A. $5/61$

B. $30/61$

C. $35/61$

D. $60/61$

Answer: B

Watch Video Solution

104. A die is rolled three times, the probability of getting a larger number than the previous number each time is

A. $15/216$

B. $5/54$

C. $13/216$

D. $1/18$

Answer: B

Watch Video Solution

105. A man alternately tosses a coin and throws a die beginning with the coin. The probability that he gets a head in the coin before he gets a 5 or 6 on the die is

A. $3/4$

B. $1/2$

C. $1/3$

D. none

Answer: A

Watch Video Solution

106. In each of a set of games it is 2 to 1 in favour of the winner of the previous game. The chance that the player who wins the first game shall win three alteast of the next 4 is

A. $8/27$

B. $4/9$

C. $2/3$

D. $4/81$

Answer: B

View Text Solution

107. The odds that a books will be reviewed favourably by three independent critics are 5 to 2,4 to 3 and 3 to 4 respectively. The probability that of the three reviews a majority will be favourable is

A. $209/343$

B. $135/343$

C. $60/343$

D. $120/343$

Answer: A

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108. A candidate take three tests in succession and the probability of passing the first test is p. The probability of passing ech succeeding test p or $\frac{p}{2}$ according as he passes or fails in the preceding one. The candidate is selected if he passes at least two tests. The probability that the candidate is selected is

A. $p(2-p)$

B. $p+p^2+p^3$

C. $p^2(1-p)$

D. $p^2(2-p)$

Answer: D

Watch Video Solution

109. A bag contains 4 tickets numbered 1,2,3,4 and another bag contains 6 tickets numbered 2,4,6,7,8,9 . One bag is chosen and a ticket is drawn . The probility that the ticket bears the number 4 is

A. $1/48$

B. $1/8$

C. $5/24$

D. none

Answer: C

Watch Video Solution

110. In the first box there re tickets marked with numbers 1,2,3,4 . In the second box there are tickets marked with number 2,4,6,7,8,9. If a box is chosen and a ticket is drawn from it at random, the probability for the number of the ticket to be 2 or 4 is

A. $9/12$

B. $5/12$

C. $5/6$

D. $1/6$

Answer: B

View Text Solution

111. Bag A contain 4 white and 5 blank balls. Bag B contains 5 white and 6 black balls. One bag is selected at random and a ball is drawn from it. The probability that is is white is

A. 52/77

B. 76/155

C. 89/198

D. $7/15$

Answer: C

Watch Video Solution

112. Bag A contains 3 white and 2 black balls. Bag B contains 2 white and 4 black balls. One bas is selected at random and a ball is drawn from it . The probability that is is white is

A. $52/77$

B. 76/155

C. 89/198

D. $7/15$

Answer: D

Watch Video Solution

113. Bag A contains 8 black and 5 balls. Contain 6 black and 7 white balls. A die is rolled . If 2 or 5 turns up , then choose bag a otherwise choose bag B. If one ball is drawn from the selected bag, the probability that it is black is

A. 20/39

B. 43/90

C. 34/89

D. 52/77

Answer: A

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114. There are two groups of subjects one of which consists of 5 Science and 3 Engineering subjects and the other consists of 3 Science and 5 Engineering subjects. An unbiased die is cost. If 3 or 5 turns up, a subject is selected at random from the first group, other wise the subject is selected at random from the second group. The probability that an Engineering subject is selected ultimatly is

A. $13/16$

B. $13/24$

C. $13/26$

D. $7/16$

Answer: B

View Text Solution

115. Three integers are chosen at random without replacement from the first 30 natural numbers. The probability that the product is even is

Watch Video Solution

116. Three bags contains 3 red, 4 black balls, 4 red, 5 black balls, 5 red , 2 black balls. If one bas is selected at random and a ball is drawn from it then the probability that it is red is

A. 100/189

B. 25/56

C. 78/98

D. 20/424

Answer: A

Watch Video Solution

117. There are 2 white , 4 black balls in urn A, In urn B, there are 5 white and 7 black balls. If one ball is randomly replaced from A and B , and a ball is drawn from B then the probability for the ball to be white one is

A. 17/50

B. 19/45

C. 16/39

D. 25/52

Answer: C

Watch Video Solution

118. A urn A contains 3 white and 5 black balls. Another urn B contains 6 white and 8 black balls. A ball is picked from A at random and then transferred to B. Then a ball is picked at random from B. The probability that it is a white ball is

A. 14/40

B. 15/40

C. 16/40

D. 17/40

Answer: D

Watch Video Solution

119. Bag A contains 2 red, 3 black balss. Bag B contains 3 red, 2 black balls. One ball is drawn from the bag A and placed in B. One ball is drawn from the bag B and placed in A. The probability that the composition of balls in the bags remain unaltered is

A. 17/30

B. 13/30

C. $7/10$

D. $7/20$

Answer: A

Watch Video Solution

120. Bag A contains 2 red, 3 black balss. Bag B contains 3 red, 2 black balls. One ball is drawn from the bag A and placed in B. One ball is drawn from the bag B and placed in A. The probability that the composition of balls in the bags remain unaltered is

A. $3/14$

B. $17/30$

C. $13/30$

D. $20/39$

Answer: B

Watch Video Solution

121. Um A contains 6 red and 4 black balls and um B contains 4 red and 6 black balls. One ball is drawn at random from um A and placed in um B. Then one ball is drawn at random from um B and placed in um A . If one ball is now drawn from um A, the probability that it is found to be red is

A. $32/55$

B. $33/55$

C. $32/63$

D. 25/66

Answer: A

Watch Video Solution

122. A box contains 3 red and 7 white balls. One ball is drawn at random and in it placed a ball of the other colour is placed in the box. Now if one ball is drawn at random from the box then the probability that it is a red ball is

A. 0.98

B. 0.89

C. 0.43

D. 0.34

Answer: D

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123. A bag contains 5 red , 3 black ball, and another bag contains 4 red and 5 black balls. One of the bags is chosen at random and a draw of two balls is made from it . The chance that one is red and other is black is

A. $\frac{275}{504}$

B. $\frac{71}{126}$

C. $\frac{145}{345}$

D. $\frac{87}{99}$

Answer: A

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124. A bag contains 16 coins of which two are counterfeit with heads on both sides. The rest are fair coins . One is selected at random from the bag and tossed. The probability of getting a head is

A. $9/16$

B. $11/16$

C. $5/9$

D. none

Answer: A

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125. A is one of 6 horses entered for a race and is to be ridden by one of two jockeys P and Q. It is 2 to 1 that P rides A, in which case all the horses are likely to win. If Q rides A, his chace is tribled . The odds favour of his winning are

A. $3/13$

B. $2/11$

C. $5/17$

D. $5/18$

Answer: D

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126. A is one of 6 horses entered for a race and is to be ridden by one of two jockeys P and Q. It is 2 to 1 that P rides A, in which case all the horses are likely to win. If Q rides A, his chace is tribled . The odds favour of his winning are

A. 5/13

B. 18/5

C. 13/18

D. 5/18

Answer:

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127. A bag contains 6 white and 4 black balls.A fair die is rolled and a number of balls equal to that appearing on the die is chosen from the bag is random. The probability that all the balls selected are white is

A. $1/5$

B. $1/6$

C. $1/7$

D. $1/8$

Answer: A

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128. A bag contains 2n coins out of which n-1 are unfair with heads on both sides and the remaining are fair. One coin is picked from the bag at random and tossed. If the probability that head falls in the toss is $\frac{41}{56}$, then the number of unfair coins in the bag is

A. 10

B. 11

C. 12

D. 13

Answer: A

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129. A letter is known to have come either from LONDON or CLIFTON, on the postmark only the two consecutive letters ON are legible . The probability that is come from London is

A. $5/17$

B. $12/17$

C. $17/30$

D. $3/5$

Answer: B

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130. A bag contains four balls. 3 white balls and 1 black ball.2 balls are drawn random. The probability that 2 balls are white is

A. $1/2$

B. $3/5$

C. $1/4$

D. $4/6$

Answer: A

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131. A bag contains six balls. Two balls are drawn and found them to be red. The probability that 5 balls in the bag are red is

A. $5/6$

B. $2/5$

C. $1/3$

D. $1/7$

Answer: D

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132. An urn contains 5 white and 3 black balls and 4 balls are drawn at random. The probability of getting white and black balls equal in number is-

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133. Three boxes numbered, I, II, III contain balls as follows

	White	Black	Red
I	1	2	3
II	2	1	1
III	4	5	3

One box is randomly selected and a ball is drawn from it. If the ball is red, then the probability that it is from box II.

A. $1/2$

B. $1/3$

C. $1/4$

D. $1/9$

Answer: C

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

A. $23/54$

B. 25/51

C. 25/52

D. 27/55

Answer: C

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135. Fpr L=1,2,3 the box B_k contains k red balls and (k+1) white balls . Let $P(B_1)=\frac{1}{2}$, $P(B_2)=\frac{1}{3}$, $P(B_3)=\frac{1}{6}$. A box is selected at random and a ball is drawn from it . If a red ball is drawn, then the probability that it has come from box B_2 is

A. 35/78

B. 14/39

C. $10/13$

D. `12//13

Answer: B

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136. Box A contains 2 black and 3 red balls, while box B contains 3 black and 4 red balls . Out of these two boxes one is selected at random, and the proability of choosing box A is double that of box B. if a red ball is drawn from the selected box then the proability that is has come from box B is

A. 21/41

B. $10/31$

C. $12/31$

D. $13/41$

Answer: B

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137. A ,B ,C are there routes from the house to the office. On any day, the route slected by the officier is independent of the climate. On a rainy day, the probabilities of reaching the office late. Thorugh these routes are , 1/125 , 1/10 , 1/4 respectively . If a rainy day, the officer is late to the office then the probability that the routes to be B is

A. $5/6$

B. $7/40$

C. 29/40

D. $10/39$

Answer: D

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138. A man is known to speak the truth 3 out of 4 times. He throws a die and reports tht it a six. The probability that it is actually a six is

A. $3/8$

B. $2/7$

C. $1/9$

D. $4/5$

Answer: A

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139. A man speaks truth in 60% cases. He throws a die and reports that it is a six . The probability that it is actually a six is

A. $3/8$

B. $3/13$

C. $5/6$

D. $5/8$

Answer: B

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140. A man is known to speack the truth 2 out of 3 times . He throws a die and reports that it is a six . The probability that it is actually a six is

A. $3/8$

B. $1/7$

C. $2/7$

D. $4/4$

Answer: B

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141. In an entrance test there are multiple choice questions. There are four possible answers to each equation, of which one is correct. The probability that a student knows the answer to a question is $9/10$. If he gets the correct answer to a question, then the probability that the was guessing is

A. $\frac{37}{40}$

B. $\frac{1}{37}$

C. $\frac{36}{37}$

D. $\frac{1}{9}$

Answer: B

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142. In a certain colleage, 4% of men and 1% of women are taller than 1.8m. Also, 60% of students are women. If a student selected at random is found to be taller than 1.8 m, then the probability that the student being a woman is

A. $3/11$

B. $5/11$

C. $6/11$

D. $8/11$

Answer: A

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Exercise 2 Special Type Questions Set 1

1. 1:20 persons among whom A and B sit in random along a round table. The probability that there are 6 persons between A and B is $2/19$.

II: Out of 30 consecutive integers 2 are drawn at random. The probabilty that their sum is odd is $15/29$.

A. Only I is true

B. Only II is true

C. Both I and II are true

D. neither I nor II true

Answer: C

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2. In a box containing 15 bulbs, 5 are defective. If 5 bulbs are selected at random from the box, the probability of the event that

(i) none of them is defective is $\frac{12}{143}$

(ii) only one of them is defective is $\frac{50}{143}$

(iii) atleast one of them is defective is $\frac{131}{143}$

A. Only I is true

B. Only II is true

C. Only III is true

D. all are true

Answer: D

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3. I:In a class 25% of the students failed in Mathematics , 30% failed in Chemistry and 15% failed in both Mathematics and Chemistry . If a student is selected at random failed in Mathematics , the probability that he failed in Chemistry is $1/2$.

II: A bag contains 10 identical balls of which 4 are blue and 6 are red. 3 balls are taken out at random from the bag one after the other. The probability that all the 3 balls drawn are red is $1/6$.

A. Only I is true

B. Only II is true

C. Both I and II are true

D. neither I nor II true

Answer: C

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4. I: A box contains 20 screws , 5 of which are defective. 2 screws are drawn at random. The probability of event that neither of the two screws is defective is $21/38$.

II: A box contains 5 black, 4 white and 6 red balls. 2 balls are drawn without replacement. The probability that the first will be first will be white and the second will be black is $4/21$.

A. Only I is true

B. Only II is true

C. Both I and II are true

D. neither I nor II true

Answer: A

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5. An urn A contains 2 white and 3 black balls. Another urn B contains 3 white and 4 black balls.Out of these two urns, one is selected at random and a ball is drawn from it. If the ball drawn is black, then the probability that $I. ItisomurnAis \frac{21}{40}, II. ItisomurnBis \frac{20}{41}$. Which of the following statements is correct

A. Only I is true

B. Only II is true

C. Both I and II are true

D. neither I nor II true

Answer: B

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6. In the random experiment of tossing two unbaised dice let E be the event of getting the sum 8 and F be the event getting even numbers on both the dice. Then

I. P(E) = $7/36$ II. P(F)=$1/3$

Which of the following is a correct statement ?

A. Both I and II are true

B. Neither I nor II is true

C. I is true, II is false

D. I is false , II is true

Answer: B

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Exercise 2 Special Type Questions Set 2

1. the probabilities of getting 3 heads when tossing 7 coins is

A. 21/128

B. 35/128

C. 45/128

D. 23/128

Answer: B

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2. If a,b,c are the probabilities of getting the sums 6,7,10 when 2 dice are thrown when the ascending order of a,b,c is

A. a,b,c

B. b,c,a

C. c,a,b

D. b,a,c

Answer: C

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3. If a,b,c are the probabilities of getting king, heart , number card , when a card is drawn from a pack then the ascending order of a,b,c is

A. a,b,c

B. b,c,a

C. c,a,b

D. b,a,c

Answer: A

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4. A bag contains 3 red, 4 white, and 5 black balls. One ball is drawn at random . If a,b,c are the probabilities of drawing a red, a black ball from the bag then the ascending order of a,b,c is

A. a,b,c

B. b,c,a

C. c,a,b

D. b,a,c

Answer: A

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5. 5 boys and 3 girls in a row at random. If a is the probability that all the girls sit together , b is the probability that all the boys sit together and c is the probability that all the boys and all the girls sit together then the ascending order of a,b,c is

A. a,b,c

B. b,c,a

C. c,b,a

D. b,a,c

Answer: A

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6. In a race three horses A,B,C are taking part. If a,b,c, are the probabilities of winning of A,B,C respectively and a=3b , c=3a then the descending order of a,b,c, is

A. a,b,c

B. b,c,a

C. c,a,b

D. b,a,c

Answer: C

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7. A number n is chosen at random from S = {1,2,3.......50}.

Then correct order of their probabilities is

A. $P(A) < P(B) < P(\mathrm{C})$

B. $P(A) > P(B) > P(\mathrm{C})$

C. $P(B) < P(A) < P(\mathrm{C})$

D. $P(A) > P(\mathrm{C}) > P(B)$

Answer: B

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8. Let S be the sample space of the random experiment of throwing simultaneously two unbaised dice with six faces (numbered 1 to 6) and let E_1={(a,b), ε S:ab =k} for $k \geq 1$

A. $p_1 < p_{30} < p_6$

B. $p_{36} < p_6 < p_2 < p_4$

C. $p_1 < p_{14} < p_4 < p_6$

D. $p_{36} < p_{11} < p_6 < p_4$

Answer: A

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Exercise 2 Special Type Questions Set 3

1. Match the following

I. The probability that a leap year will have 53 sundays is	a) 1/7
II. The probability that a leap year will have exactly 52 sundays is	b) 2/7
III. The probability that a nonleap year will have 53 sundays is	c) 5/7
IV. The probability that a nonleap year will have exactly 52 sundays is	d) 6/7

A. a,c,d,b

B. d,c,b,a

C. b,c,a,d

D. c,b,a,d

Answer: C

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2. 7 boys and 3 girls sit in a row at random, Match the following

I. Probability that no 2 girls come together is	a) 1/60
II. Probability that all the girls come together is	b) 1/30
III. Probability that all the boys come together is	c) 1/15
IV. Probability that boys come together and girls come together is	d) 7/15

A. a,c,d,b

B. d,c,b,a

C. b,c,d,a

D. c,b,a,d

Answer: B

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3. Match the following

I. If $P(A) = 3/4$, $P(B) = 2/5$, $P(A \cap B) = 1/4$ then $P(A \cup B) =$	a) $1/8$
II. If $P(A) = 1/4$, $P(B) = 1/2$, $P(A \cup B) = 5/8$ then $P(A \cap B) =$	b) $9/20$
III. If $P(A) = 1/4$, $P(B) = 1/2$, $P(A \cap B) = 1/5$ then $P(\overline{A} \cap \overline{B}) =$	c) $21/20$
IV. If $P(A \cup B) = 3/4$, $P(A \cap B) = 1/5$ then $P(\overline{A}) + P(\overline{B}) =$	d) $9/10$

A. a,c,d,b

B. d,a,b,c

C. b,c,d,a

D. c,b,a,d

Answer: B

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4. A,B,C are 3 mutually exculsive and exhaustive events in a trail. Match the following

I. If $P(A) = 2P(B) = 3P(C)$ then $P(A) =$	a) 15/23
II. If $P(A) = 2P(B) = 2P(C)$ then $P(A) =$	b) 3/5
III. If $P(A) = 3P(B) = 5P(C)$ then $P(A) =$	c) 1/2

A. a,b,c

B. b,c,a

C. c,a,b

D. b,a,c

Answer: B

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5. Match the following

I. If $P(A) = 2/5$, $P(A \cap B) = 3/10$ then $P(B \mid A) =$ a) $3/14$

II. If $P(B) = 4/5$, $P(A \cap B) = 3/10$ then $P(A \mid B) =$ b) $3/4$

III. If $P(\overline{A}) = 0{\cdot}7$, $P(B) = 0{\cdot}7$, $P(B \mid A) = 0{\cdot}5$ then $P(A \mid B) =$ c) $3/8$

A. a,b,c

B. b,c,a

C. c,a,b

D. b,a,c

Answer: B

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6. Match the following

I. If $P(A) = 0{\cdot}4$, $P(A \cup B) = 0{\cdot}7$ and A, B are independent then $P(B) =$ a) $0{\cdot}3$

II. If $P(A) = 0{\cdot}4$, $P(A \cup B) = 0{\cdot}7$ and A, B are disjoint then $P(B) =$ b) $0{\cdot}5$

III. If $P(A) = 0{\cdot}4$, $P(A \cup B) = 0{\cdot}7$, $P(A \cap B) = 0{\cdot}3$ then $P(B) =$ c) $0{\cdot}6$

A. a,b,c

B. b,c,a

C. c,a,b

D. b,a,c

Answer: D

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7. The probabilities of 2 events A and B are 0.25 and 0.40 respectively. The probability that both A and B occur is 0.1 .

Match the following

I. The probability that either A or B occurs is	a) 0·45
II. The probability that A occurs and B does not occur is	b) 0·55
III. The probability that B occurs and A does not occur is	c) 0·15
IV. The probability that neither A nor B occurs is	d) 0·3

A. a,c,d,b

B. d,c,b,a

C. b,c,d,a

D. c,b,a,d

Answer: C

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8. Suppose that E_1 and E_2 are two events of a random experiment such that

$P(E_1)=\frac{1}{4}, P(E_2 \mid E_2)=\frac{1}{2}$ and $P(E_1 \mid E_2)=\frac{1}{4}$.

Observe the lists given below :

List I	List II
A) $P(E_2)$	i) 1/4
B) $P(E_1 \cup E_2)$	ii) 5/8
C) $P(\overline{E_1} \mid \overline{E_2})$	iii) 1/8
D) $P(E_1 \mid E_2)$	iv) 1/2
	v) 3/8
	vi) 3/4

The correct matching of the list I from the list II is :

A. A-ii, B-iiii, C-vi, D-i

B. A-iv, B-v, C-vi, D-i

C. A-iv, B-ii , C-vi, D-i

D. A-I, B-ii, C-iii, D-iv

Answer: C

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9. Let A and B be events in a sample space S such that P(A)=0.5 , P(B)=0.4 and $P(A \cup B) = 0.6$. Observe the following lists :

List I	List II
i) $P(A \cap B)$	a) 0·4
ii) $P(A \cap \overline{B})$	b) 0·2
iii) $P(\overline{A} \cap B)$	c) 0·3
iv) $P(\overline{A} \cap \overline{B})$	d) 0·1

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Exercise 2 Special Type Questions Set 4

1. A: There are 4 letters and 4 addressed envelopes. If the letters are put in the random in the envelopes , the probability that all the letters may be placed in wrongly addressed envelopes is $3/8$.

R: If n letters are put at random in the n addressed envelopes , the probability that all the letters may be in wrong envelopes = 1-$\frac{1}{1!}+\frac{1}{2!}-\frac{1}{3!}+\ldots.+\frac{(-1)^n}{n!}$

A. Both A and R are true and R is the correct explanation of A.

B. Both A and R are true is not correct explanation of A.

C. A is true but R is false

D. A is false but R is true

Answer: A

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2. A: If P(A) = $3/7$, P(B) = $2/7$, $P(A \cap B) = 1/7$ then $P(A \cap B) = 4/7$

R:If A,B, are two events in a sample space S then $P(A \cup B) = P(A) - P(A \cap B)$

A. Both A and R are true and R is the correct explanation of A.

B. Both A and R are true is not correct explanation of A.

C. A is true but R is false

D. A is false but R is true

Answer: A

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3. A: If P(A) = $2/7$, $P(A \cap B) = 1/5$ then P(A|B) = $7/10$.

R: If A, B, are two events then $P(A \cap B) = P(A)P(B \mid A)$

A. Both A and R are true and R is the correct explanation of A.

B. Both A and R are true is not correct explanation of A.

C. A is true but R is false

D. A is false but R is true

Answer: A

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4. A: If the probabilities of A and B to pass the examination are $2/10, 3/10$ then the probability that only one of them to pass the examination is $19/50$.

R: If A, B are two events then P(A-B) = P(A)-P($A \cap B$).

A. Both A and R are true and R is the correct explanation of A.

B. Both A and R are true is not correct explanation of A.

C. A is true but R is false

D. A is false but R is true

Answer: A

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5. Four numbers are chosen at random (without replacement) from the set {1,2,3,....20}.

Statement -1 : The probability that the chosen number when arranged in some order will form an AP is $\frac{1}{85}$

Statement :2 If the four chosen number form an A.P. , then the set of all possible value of common difference is $\{\pm 1, \pm 2, \pm 3, \pm 4, \pm 5\}$

A. Statement -1 is true , statement -2 is true , statement -2 is a correct explanation for statement -1

B. statement-1 is true, statement -2 is true , statement -2 is not a correct explanation for statement -1

C. Statement -1 is true, statement -2 is false

D. Statement -1 is false, Statement -2 is true.

Answer: C

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