MATHS

BOOKS - HIMALAYA MATHS (KANNADA ENGLISH)

PROBABILITY

Question Bank

1. Out of 30 consecutive numbers, 2 are chosen at random. The probability that their sum is odd, is

A. 14/29

B. 16/29

C. 15/29

D. 10/29

Answer: C

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2. Two cards are drawn from a well shuffled pack of 52 cards. The probability that one is a spade and the other is heart, is

A. 13/101

B. 13/102

C. 13/103

D. 13/104

Answer: B

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3. Six unbiased coins are tossed. The probability of getting atleast 4 heads is

A. 11/64

B. 11/36

C. 15/44

D. 21/32

Answer: B

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4. Two dice are rolled simultaneously. The probability that the sum of the two numbers ofn the dice is a prime number is

A. 1/4

B. 5/36

C. 5/12

D. 5/6

Answer: C

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5. If A and B are events such that P(A) = 0.4, $P(A \cup B) = 0.7$. If A and B are independent then P(B) =

A. 0.3

B. 0.7

C. 0.4

D. 0.5

Answer: D

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6. If X is a random variable with distibution given below Then k =

and variance =

X	0	1	2	3
$P(X = x)$	k	$3k$	$3k$	k

Then k = and variance =

A. 1/8,3/4

B. 1/8,4/3

C. 1/8,3/5

D. 1/8,5/7

Answer: A

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7. In an experiment the success is twice that of failure. If the experiment is repeated 6 times, the probability that atleast 4 times favourable is

A. 64/79

B. 192/779

C. 240/779

D. 496/729

Answer: D

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8. Two students work independently on a problem. The probability that the first one will solve it is 3/4 and the probability that the second one will solve it is 2/3. The probability that the problem is solved is

A. 44510

B. 41579

C. 44541

D. 41548

Answer: C

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

A. 44348

B. 32874

C. 10959

D. 23/90

Answer: C

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10. The key for a door is in a bunch of 10 keys. A man attempts to open the door by trying keys at random discording the wrong key. The probability that the door is opened in the fifth trial is

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11. Choose the correct answer

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

A. 0

B. 44228

C. not defined

D. 1

Answer: C

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12. Choose the correct answer

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

A. $A \subset B, but A \neq B$

B. A = B

C. $A \cap B = \phi$

D. A(A) = P(B)

Answer: D

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13. Choose the correct answer

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

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14. Two events A and B will be independent if

A. A and B are mutually exclusive

B. `P(A^(')B^(')) = [1-P(A)].[1-P(B)]

C. P(A) = P(B)

D. P(A) + P(B) = 1

Answer: B

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15. Probability that A speaks truth is 4/5. A coin is tossed. A reports that a head appears. The probability that actually there was head is

A. 4/5

B. 1/2

C. 1/5

D. 2/5

Answer: A

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

A. $P(A \mid B) = \frac{P(B)}{P(A)}$

B. `P(A|B) lt P(A)

C. $P(A \mid B) \geq P(A)$

D. none of these

Answer: C

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17. Choose the correct answer

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

A. 1

B. 2

C. 5

D. 44263

Answer: B

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18. Choose the correct answer

Suppose that two cards are drawn at random from a deck of cards.

Let X be the number of aces obtained. Then the value of E(X) is

A. 37/221

B. 41395

C. 41275

D. 41306

Answer: D

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19. Choose the correct answer:

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

A. 10^{-1}

B. $\left(\frac{1}{5}\right)^5$

C. $\left(\frac{9}{10}\right)^5$

D. 44478

Answer: C

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20. Choose the correct answer:

The probability that a student is not a swimmer is $\frac{1}{5}$ out of five students, four are swimmers is

A. $5C_4\left(\frac{4}{5}\right)^4\frac{1}{5}$

B. $\left(\frac{4}{5}\right)^4\frac{1}{5}$

C. $5C_4\frac{1}{5}\left(\frac{4}{5}\right)^4$

D. none of these

Answer: A

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21. Choose the correct answer:

If A and B are two events such that $P(A) \neq 0$ and P(B|A) = 1, then

A. $A \subset B$

B. $B \subset A$

C. $B = \phi$

D. $A = \phi$

Answer: A

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22. Choose the correct answer:

If $P(A \mid B) > P(A)$, then which of the following is correct :

A. $P(B \mid A) < P(B)$

B. $P(A \cap B) < P(A).P(B)$

C. P(B|A) gt P(B)

D. P(B|A) = P(B)

Answer: C

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23. Choose the correct answer:

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

A. P(B|A) =1

B. P(A|B) =1

C. P(B|A) = 0

D. P(A|B) = 0

Answer: A

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24. Let A and B be two events such that P(A) = 0.6, P(B) = 0.2 and P(A/B) = 0.5 then $P\left(\frac{A'}{B'}\right)$ equals

A. 1/10

B. 3/10

C. 3/8

D. 6/7

Answer: C

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25. If A and B are independent events such that 0 < P(A) < 1 and 0 < P(B) < 1, then which of the following is not correct?

A. A and B are mutually exclusive

B. A and B' are independent

C. `A^(') and B are independent

D. A' and B' are independent

Answer: A

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26. Let X be a discrete random variable. The probability distribution of X is given below : Then E(X) equal to

A. 6

B. 4

C. 3

D. minus 5

Answer: B

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27. Let X be a distance random variable assuming values $x_1, x_2, \ldots\ldots, x_n$ with probabilities $p_1, p_2 \ldots . p_n$respectively . The variance of X is given by :

A. $E\left(X^2\right)$

B. $E\left(X^2\right) + E(X)$

C. $E\left(X^2\right) - [E(X)]^2$

D. $\sqrt{E\left(X^2\right) - [E(X)]^2}$

Answer: C

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28. Let A and B be two events .If P(A) = = 0.2 P(B) 0.4 , $P(A \cup B) = 0.6$ then P(A/B) is equal to :

A. 0.8

B. 0.5

C. 0.3

D. 0

Answer: D

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29. If P(A) =4/5 and $P(A \cap B)$ = 7/10 then P(B/A) =

A. 1/10

B. 1/8

C. 7/8

D. 17/20

Answer: C

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30. If P(A cap B) = 7/10 and P(B) = 17/20 then P(A/B) =

A. 14/17

B. 17/20

C. 7/8

D. 1/8

Answer: A

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

A. 1/4

B. 1/3

C. 5/12

D. 7/12

Answer: D

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32. If P(A) = 2/5, P(B) = 3/10 and $P(A \cap B) = \frac{1}{5}$ then, $P(A' \mid B').P(B' \mid A') =$

A. 5/6

B. 5/7

C. 25/42

D. 1

Answer: C

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33. If A and B are two events such that P(A) = 1/2, P(B) = 1/3, P(A|B) = 1/4, then $P\left(A' \cap B'\right) =$

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34. If P(A) = 0.4, P(B) = 0.8 and P(B|A) = 0.6 then $P(A \cup B) =$

A. 0.24

B. 0.3

C. 0.48

D. 0.96

Answer: D

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35. If A and B are two events and $A \neq \phi, B \neq \phi$ then

A. P(A|B) = P(A).P(B)

B. $P(A \mid B) = \frac{P(A \cap B)}{P(B)}$

C. P(A|B).P(B|A) =1

D. P(A|B) + P(A)|P(B)

Answer: B

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36. A and B are events such that P(A) = 0.4, P(B) = 0.3 and $P(A \cup B) = 0.5$. Then $P\left(B' \cap A'\right) =$

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37. You are given that A and B are two events such that P(B) = 3/5 and P(A|B) = 1/2 and $P(A \cup B) = \frac{4}{5}$ then P(A) =

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38. You are given that A and B are two events such that P(B) = 3/5, P(A|B) =1/2, P(A) =1/2 then $P(B \mid A)'\big) =$

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39. If P(A) = 7/13, P(B) = 9/13 and $P(A \cap B) = \frac{4}{13}$. Then $P\big(A' \mid B\big) =$

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40. If $P(A) = \frac{7}{13}, P(B) = \frac{9}{13}$ and $P(A \cap B) = \frac{4}{13}$ find $P(A/B)$

A. 41426

B. 41365

C. 44443

D. 44444

Answer: D

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41. If A and B are such events that $P(A) > 0,$ and P(B) ne 1, then $P(A' \mid B') =$

A. 1- P(A|B)

B. $1 - P(A' \mid B)$

C. $\frac{1 - P(A \cup B)}{P}(B')$

D. $P(A') \mid P(B')$

Answer: C

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42. If A and B are two independent events with P(A) = 3/5 and P(B) = 4/9 then $P(A' \cap B') =$

A. 4/15

B. 8/45

C. 1/3

D. 2/9

Answer: D

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43. Three person A, B and C fire at a target, inturn starting. with A. Their probability of hitting the target are 0.4,0.3 and 0.2 respectively The probability of two hits is

A. 0.024

B. 0.188

C. 0.336

D. 0.452

Answer:

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44. If two events are independent, then

A. they must be mutuallly exclusive

B. the sum of their probabilities must be equal

C. (a) and (b) both are correct

D. none of the above is correct

Answer: D

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45. Let A and B two events such that P(A) = 3/8, P(B) = 5/8 and $P(A \cup B) = \frac{3}{4}$. Then $P(A \mid B)P(A' \mid B) =$

A. 2/5

B. 3/8

C. 3/20

D. 6/25

Answer: D

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46. If events A and B are independent, then $P(A \cap B) =$

A. P(A) + P(B)

B. P(A)_P(B)

C. P(A).P(B)

D. P(A)|P(B)

Answer: C

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47. Two events E and F are independent. If P(E) = 0.3, $P(E \cup F) = 0.5$, then P(E|F)-P(F|E) equals

A. 2/7

B. 3/35

C. 1/70

D. 1/7

Answer: C

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48. A bag contains 5 red and 3 blue balls. If 3 balls are drawn at random without replacement the probability of getting exactly one red ball is

A. 45/196

B. 135/392

C. 15/56

D. 15/29

Answer: C

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49. A bag containing 5 red and 3 blue balls. If 3 balls are drawn at random without replacement the probability that exactly two of the three balls were red, the first being red is

A. 1/3

B. 4/7

C. 15/28

D. 46874

Answer: B

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50. Assume that in a family, each child is equally Iikely to be a boy or giris. A family with three children is choosen at random. The probability that the eldest child is a girl given that the fàmily has at least one girl is

A. 1/2

B. 1/3

C. 2/3

D. 4/7

Answer: D

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51. A die is thrown and a card is selected at random from a deck of 52 playing cards. The probability of getting an e: number on the die and a spade card is

A. 1/2

B. 1/4

C. 1/8

D. 3/4

Answer: C

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52. A box contains 3 orange balls, 3 green balls and 2 blue balls. Three balls are drawn at random from the box without

replacement. The probability of drawing 2 green balls and one blue ball is

A. 3/28

B. 2/21

C. 1/28

D. 167/168

Answer: A

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

A. 33/56

B. 9/64

C. 1/14

D. 3/28

Answer: D

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54. Eight coins are tossed together. The probability of getting exactly 3 heads is

A. 1/256

B. 7/32

C. 5/32

D. 3/32

Answer: B

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

A. 1/18

B. 5/18

C. 1/5

D. 2/5

Answer: C

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56. Which one is not a requirement of a binomial distribution?

A. There are 2 out comes of each trial

B. There is a fixed number of trials

C. The outcomes must be dependent on each other

D. The probability of success must be the same for all the trials

Answer: C

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57. Two cards are drawn from a well shuffled deck of 52 playing cards with replacement. The probability, that both cards are queens is

A. $\frac{1}{13} \times \frac{1}{13}$

B. 1/13+1/13

C. $\frac{1}{13} \times \frac{1}{17}$

D. $\frac{1}{13} \times \frac{4}{51}$

Answer: A

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58. The probability of guessing correctly at least 8 out of 10 answers on a true -false type examination is

A. 2/35

B. 7/128

C. 45/1024

D. 15/158

Answer: B

View Text Solution

59. The probability that a person is not swimmer is 0.3. The probability that out of 5 persons 4 are swimmer is

A. $5C_4(0.7)^4(0.3)$

B. $5C_1(0.7)^4(0.3)^4$

C. $5C_4(0.7)(0.3)^4$

D. $(0.7)^4(0.3)$

Answer: A

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60. The probability distribution of a discrete random variable X is given below: The value of k is

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

A. 8

B. 16

C. 32

D. 48

Answer: C

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61. For the following probability distribution E(X) is equal to

X	−4	−3	−2	−1	0
$P(X)$	0.1	0.2	0.3	0.2	0.2

A. 0

B. 1

C. minus 2

D. minus 1.8

Answer: D

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62. For the following probability distribution $E(X^2)$ is equal to

X	1	2	3	4
$P(X)$	$\frac{1}{10}$	$\frac{1}{5}$	$\frac{3}{10}$	$\frac{2}{5}$

A. 3

B. 5

C. 7

D. 10

Answer: D

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63. Suppose a random variable X follows the binomial distribution with parameters n and p, where $0 < p < 1$ .If P(x=r) / P(x=n-r) is independent of n and r, then p equals

A. 1/2

B. 1/3

C. 1/5

D. 1/7

Answer: A

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64. In a college of 30 students fail in physics, 25 fail in mathematics and 10 fail in both. One student is chosen at random. The probability that she fails in physics, if she has failed in mathematics is

A. 1/10

B. 2/5

C. 9/20

D. 1/3

Answer: B

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65. A and B are two students. Their chances of solving a problem correctly are 1/3 and 1/4 respectively. If the probability of their

making a common error is 1 20and they obtain the same answer, then the probability of their answer to be correct is

A. 44531

B. 14611

C. 13/120

D. 41548

Answer: D

View Text Solution

66. A box has 100 pens of which 10 are defective. The probability that out of a sample of 5 pens drawn one by one with replacement and atmost one is defective is

A. 44478

B. $\frac{1}{2}\left(\frac{9}{10}\right)^4$

C. $\frac{1}{2}\left(\frac{9}{10}\right)^5$

D. $\left(\frac{9}{10}\right)^5+\frac{1}{2}\left(\frac{9}{10}\right)^4$

Answer: D

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67. A problem in mathematics is given to three stdents A,B,C and their respective probability of solving the problem is $\frac{1}{2}, \frac{1}{3}$ and $\frac{1}{4}$. Probability that the problem is solved is :

A. 44289

B. 44228

C. 44257

D. 44320

Answer: A

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68. If A and B are two mutually exclusive events , then :

A. $P(A) < P(B)$

B. $P(A) > P(B)$

C. $P(A) < P(B)$

D. none of these

Answer: A

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69. A and B play a game where each is asked to select a number from 1 to 25 . If the two numbers match ,both of them win a prize . The probability that they will not win a prize in a straight trial is :

A. 45658

B. 24/25

C. 45689

D. none of these

Answer: A

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70. The probability of India winning a test match against Indies is $\frac{1}{2}$ .Assuming indepeendence from match to match , the

probability that in a 5 match series India's second win occurs at third test is :

A. 44409

B. 44287

C. 44228

D. 44257

Answer: B

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71. A fair die is tossed eight times . The probability that a thrid six is oberved on the 8th throw is :

A. $\frac{7C_2 \times 5^5}{6^7}$

B. $\frac{7C_2 \times 5^5}{6^8}$

C. $\frac{{}^{7}C_{2} \times 5^{3}}{6^{6}}$

D. none of these

Answer: B

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72. A dice is tossed 5 times . Getting an odd number is considered a success . Then the variance of distribution of number of successes is :

A. 8/3

B. 3/8

C. 4/5

D. 5/4

Answer: D

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73. Events A, B, C are mutually exclusive events such that P(A) = (3x+1)/3, P(b) = (1-x)/4, P(C) = (1-2x). Then set of positive values of x are in the interval

A. [1/3,1/2]

B. [1/3,13/3]

C. [0,1]

D. [1/3, 1/2]

Answer: D

View Text Solution

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

A. 4/5

B. 3/5

C. 2/5

D. 1/5

Answer: C

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75. The probabilit that A speaks truth is $\frac{4}{5}$, while the probability for B is $\frac{3}{4}$. The probability that they contradict each other when asked to speak on a facts is :

A. 43891

B. 44317

C. 44013

D. 44320

Answer: C

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76. A random variable X has the probability distribution: For the events E = {X is a prime number } and $F = \{1 < 4\}$, the probability $P(E \cup F) =$

distribution:

X	1	2	3	4	5	6	7	8
$P(X)$	0.15	0.23	0.12	0.10	0.20	0.08	0.07	0.05

For the events E = {X is a prime ...

A. 0.87

B. 0.77

C. 0.35

D. 0.5

Answer: B

View Text Solution

77. The mean and variance of a binomial distribution are 4 and 2 respectively . Then the probability of 2 successes is :

A. 37/256

B. 219/256

C. 128/256

D. 28/256

Answer: D

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78. Let A and B two events such that $P(\overline{A \cup B}) = \frac{1}{6}, P(A \cap B) = \frac{1}{4}$ and $P(\overline{A}) = \frac{1}{4}$, where $\overline{A}$ stands for complement of event A . Then events A and B are :

A. equally likely but not independent

B. equally likely and mutually exclusive

C. mutually exclusive and independent

D. independent but not equally likely

Answer: D

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79. Three houses are available in a localty . Three persons apply for the houses . Each applies for one house without consulting others . The probability that all three apply for the same house is :

A. 44440

B. 44441

C. 44446

D. 44447

Answer: A

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80. Two numbers are chosen from [1,2,3,4,5,6] one after another without replacement . Find the probability that one of the smaller value of two is less than 4 :

A. 44320

B. 42005

C. 44317

D. 14/15

Answer: A

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81. $P(B) = \frac{3}{4}, P(\overline{A} \cap B \cap \overline{C}) = \frac{1}{3}. P(A \cap B \cap \overline{C}) = \frac{1}{3}$ then $P(B \cap C)$:

A. 44531

B. 44348

C. 42005

D. 44440

Answer: A

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82. If three distinct numbers are chosen randomly from the first 100 natural numbers , then the probability that all three of them are divisible by 2 and 3 is :

A. 45748

B. 12875

C. 12145

D. 4/1155

Answer: D

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83. A fair die is thrown till we get . Then the probability of getting 1 in exactly even number of trials is :

A. 13455

B. 44505

C. 44506

D. 44348

Answer: B

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84. The probability that A can solve a problem is 2/3 and B can solve is 3/4. If both of them attempt the problem, what is the probability that the problem get solved

A. 11/12

B. 7/12

C. 5/12

D. 9/12

Answer: A

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85. Six coins are tossed simultaneously. The probability of getting atleast 4 heads is

A. 11/64

B. 11/32

C. 15/44

D. 21/32

Answer: B

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86. The probability that a candidate secures a seat in engg, through EAMCET is 1/10. 7 candidates are selected at random from a centre, The probability that exactly two will get seats is

A. $15.\ (0.1)^2.\ (0.9)^5$

B. $20.\ (0.1)^2.\ (0.9)^5$

C. $21.\ (0.1)^2.\ (0.9)^5$

D. $23.\ (0.1)^2.\ (0.9)^5$

Answer: C

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87. If P(A) = 1/4, P(B) = 1/2, $P(A \cup B) = \frac{5}{8}$ then $P(A \cap B) =$

A. 3/8

B. 1/8

C. 2/8

D. 5/8

Answer: B

Watch Video Solution

88. The probability that a isumtilci sefected at random from the set of nurnbeis 1,2,3 ..... 100 is a cube is

A. 45658

B. 45689

C. 45717

D. 45748

Answer: A

Watch Video Solution

89. The probability of getting exactly 4 heads in 6 tosses of a coin is

A. 15/60

B. 15/64

C. 13/64

D. 23651

Answer: B

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90. 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

Watch Video Solution

91. Two unbiased six faced dice are thrown. The probability that the sum of the numbers on faces of them is a prime number greater than 5 is

A. 1/6

B. 1/2

C. 2/9

D. 4/9

Answer: C

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92. If A and B are two events such that $P(A \cup B) = \frac{5}{6}$, $P(A \cap B) = \frac{1}{3}$, P(A) = 2/3, then A and B are

A. Dependent events

B. Independent events

C. Mutually exclusive events

D. Mutually exclusive and independent

Answer: B

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

A. 1/6

B. 1/30

C. 11/80

D. 23/90

Answer: D

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94. A and B are mutually exclusive events with P(A) = 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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95. A problem in mathematics is given to three stdents A,B,C and their respective probability of solving the problem is $\frac{1}{2}, \frac{1}{3}$ and $\frac{1}{4}$. Probability that the problem is solved is :

A. 44289

B. 45292

C. 44287

D. 23/24

Answer: A

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96. 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 anyone of the dice is

A. 2/5

B. 1/5

C. 2/3

D. 3/5

Answer: A

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97. A random variable has the following distribution The value of of k and $P(X < 3)$ are equal to

$X\ (= x_i)$	1	2	3	4
$P(X = x_i)$	k	$2k$	$3k$	$4k$

A. $k = \frac{1}{10}, P(X < 3) = \frac{3}{5}$

B. $k = \frac{1}{10}, P(X < 3) = \frac{3}{10}$

C. $k = \frac{3}{10}, P(X < 3) = \frac{1}{10}$

D. $k = \frac{1}{10}, P(X < 3) = \frac{5}{12}$

Answer: B

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98. A coin is tossed 3 times. The probability of getting head once and tail 2 times is

A. 1/8

B. 1/3

C. 3/8

D. 1/2

Answer: C

Watch Video Solution

99. A random variable X has the following distribution The mean and variance of X are

$X(=x_i)$	0	1	2	3
$P(X=x_i)$	$\frac{2}{6}$	$\frac{3}{6}$	$\frac{0}{6}$	$\frac{1}{6}$

A. 1,1

B. 1,2

C. 2,1

D. 2,2

Answer: A

Watch Video Solution

100. The probability of a man hitting the target is 1/4. If he fires 7 times, the probability of hitting the target at least twice is

A. $1-\left(\frac{5}{2}\right)\left(\frac{3}{4}\right)^6$

B. $1-\frac{15}{2}\left(\frac{3}{4}\right)^2$

C. $1-\frac{5}{6.3^5}$

D. $1-\left(\frac{3}{4}\right)^6$

Answer: A

Watch Video Solution

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

A. 7/36

B. 29/36

C. 1/6

D. 5/6

Answer: C

Watch Video Solution

102. One of the two events A and B must occur. If P(A) = 2/3. P(B), the odds in favour of B are

A. 0.04305

B. 2:1

C. 2:3

D. 3:2

Answer: D

Watch Video Solution

103. A letter is selected at random from the letters of the word "PROBABILITY". Find the probability that it is

i] a B

ii] a consonant

iii] a vowel

iv] a Y

A. 44503

B. 44504

C. 44502

D. 44501

Answer: B

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104. The probability 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

Watch Video Solution

105. The probability distribution of random variable X is given below. Then k =

$X = x_i$	1	2	3	4
$P(X = x_i)$	$2k$	$4k$	$3k$	k

A. 0.1

B. 0.2

C. 0.3

D. 0.4

Answer: A

Watch Video Solution

106. In a competition A, B and C are participants. The probability that A wins is twice the probability of B, the probability that B wins is twice that of C. The probability that A loses is

A. 1/7

B. 2/7

C. 4/7

D. 3/7

Answer: D

Watch Video Solution

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

A. 1/4

B. 1/2

C. 3/4

D. 3/8

Answer: A

Watch Video Solution

108. The probability distribution of a random variable X is given below. Then its mean is `

$X = x_i$	1	2	3
$P(X = x_i)$	1/4	1/8	5/8

A. 19/8

B. 5/4

C. 1

D. 4/5

Answer: A

Watch Video Solution

109. A random variable X takes the values 0,1 and 2. If P(X=1)=P(X=2) and P(X=0)=0.4 then the mean of the random variable X is

A. 0.2

B. 0.5

C. 0.7

D. 0.9

Answer: D

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110. A bag contains 5 black balls, 4 white balls and 3 red balls. If a ball is selected at random the probability that it is either red or black is

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111. The probability of getting qualified in IITJEE and EAMCET by a student are respectively 1/5 and 3/5. The probability that the students gets qualified for one of these tests is

A. 7/17

B. 17/25

C. 22/25

D. 25/23

Answer: B

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112. One die and a coin are tossed simultaneously, the probability of getting 5 on the top of the die and tail on the coin is

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113. If $P(A \cup B) = 0.8, P(A \cap B) = 0.3, then$P (bar(A)) + P (bar (B)) =`

A. 0.3

B. 0.5

C. 0.7

D. 0.9

Answer: D

Watch Video Solution

114. A coin is tossed n times. The probability of getting head atleast once is greater than 0.8. Then the least value of such n is

A. 2

B. 3

C. 4

D. 5

Answer: B

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115. A box X contains 2 white and 3 black balls and another bag Y contains 4 white and 2 black balls. One bag is selected at random and a ball is drawn from it. Then the probability for the ball chosen be white is

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116. A random variable X takes the values 0,1,2,3 and its means is 1.3. If P(X = 3) = 2P(X=1) and P(X = 2) = 0.3, then P(X = 0) is

A. 0.1

B. 0.2

C. 0.3

D. 0.4

Answer: D

View Text Solution

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

A. 1/4

B. 1/2

C. 3/4

D. 2/3

Answer: A

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118. A number n is choosen at random form $S = \{1, 2, 3, \ldots., 50\}$ Let $A = \left\{n \in S : n + \frac{50}{n} > 27\right\}$, $B = \{n \in S : n$ is a prime$\}$ and $C = \{n \in S : n$ is a square$\}$. The correct order of their probabilities is

A. $P(A) < P(B) < P(C)$

B. $P(A) > P(B) > P(C)$

C. $P(B) < P(A) < P(C$

D. $P(A) > P(C) > P(B)$

Answer: B

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119. 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 probability of choosing box A is double that of box B. If a red ball is drawn from the selected box, then the probability that it has come from box B is

A. 21/41

B. 11597

C. 11658

D. 13/41

Answer: B

View Text Solution

120. If the range of a random variable X is {0,1,2,3 .....,} with $P(X=k)=((k+1))\frac{a}{3^k}$ for $k \geq 0$, then a =

A. 2/3

B. 4/9

C. 8/27

D. 16/81

Answer: B

Watch Video Solution

121. Suppose $n \geq 3$ persons are sitting in a row. Two of them are selected at random. The probability that they are together

A. 1-2/n

B. 2/(n-1)

C. 1-1/n

D. none of these

Answer: A

Watch Video Solution

122. If the probability that A and B will die within a year are p and q reapectively , 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

123. If different words are found from letters of the word 'UNIVERSITY', then the probability that two of I' s do not come together is :

A. 44320

B. 44317

C. 44470

D. 44478

Answer: A

Watch Video Solution

124. Three letters are sent to different persons and addresses on the three envelopes are written at random . The probability that the letters go into the right envelops is :

A. 44348

B. 46753

C. 46388

D. 44440

Answer: A

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125. A bag contains 4 red, 6 white and 5 black balls. 2 balls are drawn at random. The probability of getting one red and one white ball is

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126. If two events $P(A \cup B) = \frac{5}{6}$, P(A) = 1/6, P(B) = 2/3, then A and B are

A. Independent

B. Mutually exclusive

C. Mutually exhausive

D. Dependent

Answer: B

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127. Let A and B be two events such that P(A) = 0.3 and $P(A \cup B) = 0.8$. If A and B are independent then P(B) =

A. 44382

B. 44259

C. 44289

D. 44323

Answer: A

View Text Solution

128. Let A and B be two events such that $P(A \cup B) = \frac{5}{6}, P(A \cap B) = \frac{1}{3}$ and P(A) = 1/2, then

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

B. P(B) = P(A)

C. A and B are independent

D. A and B are mutuallt exculsive

Answer: C

View Text Solution

129. Among 15 players, 8 are batsmen and 7 are bowlers, the probability that a team has 6 batsmen and 5 bowlers is

A. $\frac{8C_6 \times 7C_5}{15C_{11}}$

B. 28/15

C. 15/28

D. none of these

Answer: A

View Text Solution

130. The probability that the two digit number formed by digits 1,2,3,4 is divisible by 4 is

A. 10959

B. 43831

C. 44287

D. none of these

Answer: C

View Text Solution

131. From a pack of cards, 2 cards are drawn at random one by one with replacement. The probability that the first is heart and second is king, is equal to

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132. If P(A) = P(B) = x and $P(A \cap B) = P\left(A' \cap B'\right) = \frac{1}{3}$ then x =

A. 1/2

B. 1/3

C. 1/4

D. 1/6

Answer: A

Watch Video Solution

133. If a dice is thrown twice, the probability occurrence of 4 at least once is

A. 13455

B. 35/36

C. 44537

D. none of these

Answer: A

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134. A and B are two events such that $P(A) > 0$, $P(B) \neq 1$ then $P\left(\overline{A} / \overline{B}\right)$ is equal to :

A. $1 - P(A \cap B)$

B. $1 - P(A \cap B)$

C. $\frac{1 - P(A \cup B)}{P}\left(B'\right)$

D. (P(A))/(P(B))

Answer: C

Watch Video Solution

135. Three identical dice are rolled. The probability that the same number will appear on each of them is

A. 1/6

B. 1/8

C. 1/36

D. none of these

Answer: c

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136. The probability that atleast one of the events A and B occur is 0.6. If A and B occur simultaneously with the probability 0.2 then

A. 0.4

B. 0.8

C. 1.2

D. 1.4

Answer: C

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137. n persons sit on a round tabler against two specified persons sitting together is

A. 2 : n -3

B. (n-1) : 2

C. (n-2) : 2

D. (n-3) : 2

Answer: D

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138. The probability of A = probability of B = probability of C = 1/4, $P(A \cap B) = P(C \cap B) = 0$ and $P(A \cap C)$ = 1/8, then $P(A \cap B \cap C)$ =

A. 5/18

B. 37/64

C. 3/4

D. 1

Answer: A

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139. It is known that a probability of a man aged 25 years to survive one more year is 0.992 and that he will die within a year is 0.008. An insurance company offers to sell such a man Rs. 1000 one year life insurance policy for a premium of Rs. 10 what is the company's expected gain?

A. 2

B. 200

C. 2000

D. 500

Answer: A

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140. The probability distribution of a discrete random variable X is given by then the value of 6. $E\left(X^2\right) - Var(X)$ is

X	-1	0	1	2
$P(X)$	1/3	1/6	1/6	1/3

A. 41609

B. 113/12

C. 44549

D. 44228

Answer: B

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141. In a non - leap year the probability of getting 53 Sundays or 53 Tuesday or 53 Thrusdays is :

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142. The probability for a randomly chosen month to have its 10th day as Sunday is :

A. 30682

B. 44540

C. 30956

D. 44378

Answer: A

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143. If P(A) = 2/3, P(B) =1/2 and `P(A cup B) = 7/6 then events A and B are

A. mutually exclusive

B. independent as well as mutually exclusive

C. independent

D. dependent only on B

Answer: A

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144. A coin is tossed n times. The probability of getting exactly six heads in

A. 512/513

B. 105/512

C. 100/513

D. $10C_{96}$)

Answer: B

Watch Video Solution

145. A five digit number is formed by writing the digits 1,2,3,4,5 in a random order without repetition. Then the probability that the number is divisible by 4 is

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

B. $\frac{18}{5}$

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

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

Answer: C

Watch Video Solution

146. The probability that in a year of the 22^{nd} century chosen at random there will be 53 sunday is

A. $\frac{3}{28}$

B. $\frac{2}{28}$

C. $\frac{7}{28}$

D. $\frac{5}{28}$

Answer: D

View Text Solution

147. India plays two matches each with Australia and Pakistan. The probability of India getting points 0,1,2 are 0.45,0.05,0.50. Find the probability of India getting at least 7 points in the series

A. 0.00875

B. 0.875

C. 0.0875

D. none of these

Answer: C

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148. For two independent events A and B, the probability that both A & B occur is 1/8 and the probability that neither of them occur is 3/8. The probability of occurrence of A may be

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

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

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

D. $\frac{3}{4}$

Answer: B

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149. An urn contains 9 balls two of which are red, three blue and four black. Three balls are drawn at random. The probability that they are of same colour is

A. $\frac{5}{84}$

B. $\frac{3}{9}$

C. $\frac{3}{7}$

D. $\frac{7}{17}$

Answer: A

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150. If A and B are two events such that P(A) = 1/2 and P(B) = 2/3, then

A. $P(A \cup B) \geq \frac{2}{3}$

B. $P\left(A \cap B'\right) > \frac{1}{3}$

C. $P(A \cap B) > \frac{1}{2}$

D. $P\left(A' \cap B\right) > \frac{1}{2}$

Answer: A

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151. A bag contains 3 black and 4 white balls. Two balls are drawn one by one at random without replacement. The probability that second drawn ball is white is

A. $\frac{4}{49}$

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

C. $\frac{4}{7}$

D. $\frac{12}{49}$

Answer: C

Watch Video Solution

152. Two cards are drawn at randrom from a pack of 52 cards. The probability of these two being "Aces" is

A. 46023

B. 1/221

C. 44228

D. none of these

Answer: B

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153. If A and B are any two events, then the probability that exactly one of them occur is

A. $P\left(A \cap \overline{B}\right) + P\left(\overline{A} \cap B\right)$

B. $P\left(A \cup \overline{B}\right) + P\left(\overline{A} \cup B\right)$

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

D. $P(A) + P(B) + 2P(A \cap B)$

Answer: A

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154. The probability of a sure event is:

A. 2

B. 44228

C. 1

D. unlimited

Answer: C

Watch Video Solution

155. A card is drawn at random from a well shuffled pack of 52 cards. The probability of getting a heart or diamond is

A. 2/78

B. 1/51

C. 3/78

D. 1

Answer: B

View Text Solution

156. A natural number x is chosen at random from the first 100 natural number. The probability that $x + \frac{100}{x} > 50$ is

A. 11/20

B. 11

C. 20/11

D. none of these

Answer: D

Watch Video Solution

157. Two dice are thrown simultaneously. The probability of getting a pair of 1 is

A. 1/36

B. 1/3

C. 1/6

D. none of these

Answer: A

Watch Video Solution

158. A bag contains 50 tickets, number 1,2,3,...., 50 of which five are drawn at random and arranged in ascending order of magnitude $(x_1 < x_2 < \ldots. < x_5)$. $The prubabilityt$ˆx_{3}=30`.

A. $\frac{20C_1 \times 29C_2}{50C_5}$

B. $\frac{20C_2}{50C_5}$

C. $\frac{29C_2}{50C_5}$

D. none of these

Answer: A

Watch Video Solution

159. Three integers are chosen at rapelom from the first 20 integers. The probabifity that their product is even is

A. 43497

B. 43525

C. 17/19

D. 43556

Answer: C

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160. The chance of throwing a total of 7 or 12 with 2 dice is

A. 44441

B. 44444

C. 13271

D. 13332

Answer: D

View Text Solution

161. The chance of getting a doublet with 2 dice is

A. 44257

B. 44348

C. 44352

D. 13271

Answer: B

View Text Solution

162. The letters of the word ALLAHABAD are arranged at random. The probability that in the word so formed all similar letters are found together is

A. 23012

B. 16/17

C. (5!)/(9!)

D. 17/16

Answer: A

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163. For any two independent events E_1 and E_2, $P\{(E_1 \cup E_2) \cap (\overline{E}_1 \cap \overline{E}_2)\}$ is

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

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

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

D. none of these

Answer: A

Watch Video Solution

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

A. 44228

B. 44409

C. 44411

D. none of these

Answer: A

View Text Solution

165. The probability of occurrence of a multiple of 2 n one dice and a multiple of 3 on the order dice if the both are thrown together , is :

A. 13332

B. 44256

C. 71/36

D. 44287

Answer: B

Watch Video Solution

166. 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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167. Probability that a student will succeed in IIT entrance test is 0.2 and that he will succeed in Roorkee entrance test is 0.5. If the probability that he will be successful at both the places is 0.3, then the probability that he does not succeed at both the places is

A. 0.4

B. 0.3

C. 0.2

D. 0.6

Answer: D

Watch Video Solution

168. For any two independent events E_1 and E_2, $P\{(E_1 \cup E_2) \cap (\overline{E}_1 \cap \overline{E}_2)\}$ is

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

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

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

D. none of these

Answer: A

Watch Video Solution

169. For three events A, B, C, we have $P(A \cup B) = p, P(A \cup C) = p, P(A \cup C) = p, P(A \cap B \cap C) = p^2$, where $0 < p < \frac{1}{2}$. Now, the probability of atleast one of the three events A, B and C occuring is

A. $\frac{3p+2p^2}{2}$

B. $\frac{p+3p^2}{2}$

C. $\frac{3p+p^2}{2}$

D. $\frac{3p+2p^2}{4}$

Answer: A

View Text Solution

170. If from each of the three boxes containing 3 white and 1 black , 2 white and 2 black , 1 white and 3 black balls , one ball is drawn at random , then the probability that 2 white and 1 black ball will be drawn is :

A. 13/32

B. 44287

C. 11689

D. 42430

Answer: A

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171. 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 both the faulty machines are indentified. Then the probability that only two tests are needed is

A. 1/6

B. 1/3

C. 1/2

D. 1/4

Answer: B

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172. If $\overline{E}$ and $\overline{F}$ are complementary events of events E and F respectively and $0 < P(F) < 1$, then :

A. P(E|F) + P(E|F) =1

B. P(E|F) + P(E|F) =1

C. $P\left(\overline{E} \mid F\right) + P\left(E \mid \overline{F}\right) = 1$

D. `P(bar E | bar F) + P(bar E |F) =1

Answer: A

Watch Video Solution

173. An experiment has 10 equally likely outcomes. Let A and B be two non-empty events of the experiment. If A consists of 4 outcomes, the number of outcomes that B must have so that A and B are independent is

A. 2,4 or 8

B. 3, 6 or 9

C. 4 or 8

D. 5 or 10

Answer: D

Watch Video Solution

174. Let ω be a complex cube a root of unity with $\omega \neq 1$. A fair die is thrown three times . If $r_1, r_2 \text{ and } r_3$ are the numbers obtained

on the die , then the probability that $\omega^{r_1} + \omega^{r_2} + \omega^{r_3} = 0$ is :

A. 43101

B. 44440

C. 44441

D. 13150

Answer: C

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175. A and B are two events such that $P(A \cup B) = \frac{3}{4}, P(A \cap B) = \frac{1}{4}, P(\overline{A}) = \frac{2}{3}, then$P(bar A cap B) =`

A. 44535

B. 44411

C. 44413

D. 44287

Answer: A

View Text Solution

176. A die is thrown . Let A be the event that the number obtained is greater than 3 . Let B be the event that the number obtained is less than 5 . Then $P(A \cup B)$ is :

A. 1

B. 44318

C. 44319

D. 0

Answer: A

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177. It is given that events A and B are such that : $P(A) = \frac{1}{4}, P(A/B) = \frac{1}{2}$ and $P(B/A) = \frac{2}{3}$. Then P(B) is :

A. 44257

B. 44228

C. 44348

D. 44256

Answer: D

Watch Video Solution

178. In a binomial distribution $B\left(n, p = \frac{1}{4}\right)$, if the probability of at least one success is greater than or equal to $\frac{9}{10}$, then n is

greater than :

A. $\frac{1}{\log_{10} 4 - \log_{10} 3}$

B. $\frac{1}{\log_{10} 4 + \log_{10} 3}$

C. $\frac{9}{\log_{10} 4 - \log_{10} 3}$

D. $\frac{4}{\log_{10} 4 - \log_{10} 3}$

Answer: A

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

A. 41640

B. 44378

C. 41760

D. 18264

Answer: A

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180. Out of 3 n consecutive integers, three are selected at random.

Find the probability that their sum is divisible by 3 is

A. $\frac{n\left(3n^2-3n+2\right)}{2}$

B. $\frac{3n^2-3n+2}{2(3n-1)(3n-2)}$

C. $\frac{3n^2-3n+2}{3n-1}(3n-2)$

D. (n(3n-1)(3n-2))/(3(n-1))

Answer: C

Watch Video Solution

181. 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. 44197

B. 44958

C. 44256

D. 44379

Answer: D

Watch Video Solution

182. The probability that a isumtilci sefected at random from the set of nurnbeis 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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183. If A and B are independent events such that P(B) = 2/7, `P(A cup bar B) = 0.8, then P(A) =

A. 0.1

B. 0.2

C. 0.3

D. 0.4

Answer: C

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184. Four numbers are chosen at random from {1,2,3, ...40} The probubility that they are not consecutive is

A. 1/2470

B. 4/7969

C. 2469/2470

D. 7965/7969

Answer: C

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185. The probability distribution of a random variable X is given by

The variance of X is

$X = x$:	0	1	2	3	4
$P(X = x)$:	0.4	0.3	0.1	0.1	0.1

A. 1.76

B. 2.45

C. 3.2

D. 4.8

Answer: A

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186. Two aeroplanes I and II bomb a target in succession . The probabilities of I and II scoring a hit correctly are 0.3 and 0.2 respectively . The second plane will bomb only if the first misses the target . The probability that the target is hit by the second plane is :

A. 0.2

B. 0.7

C. 0.06

D. 0.14

Answer: D

Watch Video Solution

187. If the probability distribution of a random variable X is as given below Then the value of k is

$X = x$:	-2	-1	0	1	2	3
$P(X = x)$:	$\frac{1}{10}$	k	$\frac{1}{5}$	$2k$	$\frac{3}{10}$	k

A. 1/10

B. 2/10

C. 3/10

D. 4/10

Answer: A

View Text Solution

188. If A and B are independent events of a random experiment such that $P(A \cap B) = \frac{1}{6}$ and `P(bar A cap B) = 1/3, then P(A) is

equal to

A. 2/3

B. 1/3

C. 5/7

D. none

Answer: B

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189. Let S he the sample space associated with the random experiment of throwing simuitaneously two unbiased dice with six faced (numbered 1 to 6) and let $E_k = \{(a, b) \in S : ab = k\}$ for $k \leq 1$ If $p_k = P(E)$ for ` k ge 1„ then correci among the following is

A. $P_1 < P_{30} < P_4 < P_6$

B. $P_{36} < P_6 < P_2 < P_4$

C. $P_1 < P_{11} < P_4 < P_6$

D. $P_{36} < P_{11} < P_6 < P_4$

Answer: A

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190. If the probability distribution of a random variable X is as given below Then the value of k is

$X = x$:	-2	-1	0	1	2	3
$P(X = x)$:	$\frac{1}{10}$	k	$\frac{1}{5}$	$2k$	$\frac{3}{10}$	k

A. 1/10

B. 2/11

C. 3/10

D. 1/9

Answer: A

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191. The sum of the mean and variance of a binomial distribution is 15 and the sum of their squares is 117. The mean of the distribution is

A. 6

B. 9

C. 3

D. 12

Answer: B

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

A. 0.875

B. 0.0875

C. 0.0625

D. 0.025

Answer: B

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193. If A and B are independent events such that $P(A) > 0, P(B) > 0$, then

A. A and B are mutually exclusive

B. A and B are dependent

C. $\bar{a}$ and $baredependent$

D. P(A|B) + P(A|B) =1

Answer: D

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194. If random variable X has the following probability distribution then the value of 'a' is

$X:$	0	1	2	3	4	5	6	7	8
$P(X = x):$	a	$3a$	$5a$	$7a$	$9a$	$11a$	$13a$	$15a$	$17a$

A. 7/81

B. 5/81

C. 2/81

D. 1/81

Answer: D

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195. In an entrance examination there are multiple dioice questions. Ihere are fous pessibie snswers to each question uf which one is correct. The probabinity that a student knows the answer to a question is 90 %. If he gets the correct answer to the question, then the probability that he was guessing is

A. 11/37

B. 36/37

C. 1/37

D. 37/40

Answer: C

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196. The numbers are chosen from 1 to 30 . The probability that they are not consecutive is

A. 142/145

B. 144/145

C. 143/145

D. 1/145

Answer: B

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197. Choose the correct answer:

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

A. $\left(\frac{9}{10}\right)^5$

B. 44478

C. 10^{-5}

D. $\left(\frac{1}{2}\right)^2$

Answer: A

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198. In a binomial distribution n =4, P(X = 0) = 16/81 then P(X=4) equals

A. 1/16

B. 1/81

C. 1/27

D. 1/8

Answer: B

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199. A rifleman is firing at a distant target and has only 10 % chance of hitting it. The least uumber of rounds, he must fire in order to have more than 50% chance of hitting it at least once is

A. 11

B. 9

C. 7

D. 5

Answer: C

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200. If A and B are arbitrary events then

A. $P(A \cap B) \geq P(A) + P(B)$

B. $P(A \cup B) \leq P(A) + P(B)$

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

D. none of these

Answer: B

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201. A coin is tossed 2 n times. The chance that the number of times one gets head is not equal to the number of times one gets tail is

A. $12C_n . \left(\frac{1}{2}\right)^{2n}$

B. $1 - 2nC_n$

C. $1 - 2nC_n . \left(\frac{1}{4^n}\right)$

D. none of these

Answer: C

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202. Three identical dice are rolled. The probability that the same number will appear on each of them is

A. 44348

B. 13150

C. 43101

D. 46813

Answer: B

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203. A die is tossed thrice. If event of getting an even number is a success, then the probability of getting at least two successive is

A. 44415

B. 44287

C. 44257

D. 44228

Answer: D

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204. If $x = 33^n$, where n is a positive integral value, then what is the probability that x will have 3 at unit place?

A. 1/2

B. 1/4

C. 1/3

D. 1

Answer: B

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205. X speaks truth in 60% and 'Y' in 50% of the cases. The probability that they contradict each other while narrating the

same incident is

A. 1/4

B. 1/3

C. 1/2

D. 2/3

Answer: C

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206. For a party 7 guests are invited by a husband and wife. They sit in a row for dinner. The probability that the husband and his wife sit together, is

A. 2/7

B. 2/9

C. 1/9

D. 4/9

Answer: B

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207. There are 12 white and 12 red balls in a bag. Balls are drawn one by one with replacement from the bag. The probability that 7^{th} drawn ball is 4^{th} white, is

A. 44287

B. 11810

C. 42430

D. 42491

Answer: B

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208. A die is thrown 100 times, getting an even number is considered a success. The variance of the number of successes is

A. 10

B. 25

C. 18

D. 12

Answer: B

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209. If A and B are mutually exclusive events with $P(B) \neq 1$ then $P\left(A \mid \overline{B}\right) =$

A. 1/(P(B))

B. 1/(1-P(B))

C. (P(A))/(P(B))

D. (P(A))/(1-P(B))

Answer: D

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210. 5 persons A, B, C, D and E are in a queue of a shop. The probability that A and E always occur together is

A. 1/4

B. 2/3

C. 2/5

D. 3/5

Answer: C

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211. Two cards are drawn successively with replacement from a well suffled deck of 52 cards, then the mean of the number of aces is

A. $\frac{1}{13}$

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

C. $\frac{2}{13}$

D. none of these

Answer: C

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212. If X and Y are independent binomial variates, B(5,1/2) and B(7,1/2), then P(X + Y =3) is

A. 35/47

B. 55/1024

C. 220/512

D. 11/204

Answer: B

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213. Let A, B and C be three events such that P(A) = 0.3, P(B) = 0.4, P(C) = 0.8, $P(A \cap B) = 0.08, P(A \cap C) = 0.28, P(A \cap B \cap C) = 0.09.$ If $P(A \cup B \cup C) \geq 0.75$, then $P(B \cap C)$ satisfies

A. $P(B \cap C) \leq 0.23$

B. $P(B \cap C) \leq 0.48$

C. $0.23 \leq (B \cap C) \leq 0.48$

D. $0.23 \leq P(B \cap C) \geq 0.48$

Answer: C

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