MATHS

BOOKS - DEEPTI MATHS (TELUGU ENGLISH)

PERMUTATIONS & COMBINATIONS

Solved Examples

1. The total number of signals than can be made with 5 different coloured flags is

A. 325

B. 350

C. 360

D. 720

Answer: A

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2. If the letters of the word PRISON are permuted in all possible ways and the whole thus formed are arranged in dictionary order the rank of the word SIPRON is

A. 438

B. 618

C. 724

D. 840

Answer: B

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3. The number of distnct 5 digit number that can be formed using 2,3,4,5,6,7digits which are divisible by 25 without repetition is

A. 64

B. 48

C. 36

D. 24

Answer: B

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4. The number of three digited telephone numbers than can be formed using the digits 1,2,3,4,5,6 with atleast one digit repeated is

A. 96

B. 120

C. 216

D. 336

Answer: A

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5. The number of ways in which 6 men and 4 ladies can sit around a round table so that no two ladies come together is

A. $6!^4p_6$

B. $5!^6p_4$

C. $4!^5p_2$

D. $4!^5p_3$

Answer: B

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6. The number of ways in which 4 boys and 4 girls may be seated around a circular table so that there is one between every two girls is

A. 142

B. 144

C. 157

D. 158

Answer: B

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7. IF a set A has 12 elements , then the number of subsets of A having atleast 3 elements is

A. 495

B. 4096

C. 4017

D. 79

Answer: C

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8. The number of five letter words can be formed using 3 consonents and 2 vowels from the letters of the word MIXTURE is

A. 120

B. 1220

C. 1440

D. 1560

Answer: C

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9. Find the number of ways of giving away 4 similar coins to 5 boys if each boy can be given any member (less than or equal to 4) of coins.

A. 20

B. 24

C. 54

D. 70

Answer: D

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10. There are 8 railway stations along a railway line The number of ways in which a train can stop 3 stations no two of them are consecutive is

A. 20

B. 56

C. 24

D. 72

Answer: A

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11. A set A has 6 elements . The number of ways of selecting two subsets P and Q are disjonit is

A. 64

B. 128

C. 243

D. 729

Answer: D

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12. The number of non bijective functions form set A consisting 5 elements to an other set consisting 5 elements is

A. 3125

B. 120

C. 3005

D. 3245

Answer: C

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13. In a plane , a set of 8 parallel lines interset a set of n parallel lines forming a total of 420 parallelogram (many of which overlap one an other), then mn equals to

A. 4

B. 6

C. 8

D. 10

Answer: B

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14. The number of odd proper divisors of $3^n . 21^n$ is

A. $(p+m+n+1)(m+1)(n+1)-2$

B. $(p+m+n+1)(n+1)-1$

C. $(p+m+n+1)(n+1)-2$

D. $(p+1)(m+1)(n+1)-2$

Answer: B

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Exercise 1 A Permutations

1. There are 3 roots from tenali to vajaywada and 4 routes from vijaywada to Hyderabad in how different ways a person can travel from Tenali to hyderabad via vijaywada ?

A. 12

B. 10

C. 18

D. 20

Answer: A

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2. A student has 5 pant and 8 shirts . The number of ways in which he can wear the dress in different combination is

A. ${}^{8}P_{5}$

B. ${}^{8}C_{5}$

C. $8! \times 5!$

D. 40

Answer:

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3. There are 4 doors to a lecture room . The number of ways in which a student can enter the room and leave it by different door is

A. 12

B. 10

C. 18

D. 20

Answer: A

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4. An automobile dealer provides motor cycles and scooters in three body patterns and 4 different colours each . The number of chocies open to a customer is

A. ${}^4P_3$

B. ${}^4C_3$

C. 4×3

D. $4 \times 3 \times 2$

Answer:

Watch Video Solution

5. a Letter lock contains 5 rings each marked with four different letters . The number of all possible iunsuccesful attempts to open the lock is

A. 625

B. 1024

C. 624

D. 1023

Answer:

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6. If $n ! = 40320$, then n=

A. 24

B. 12

C. 8

D. 23

Answer: C

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7. $1 + 1 \times 1! + 4! + 7! + \ldots + n \times n! =$

A. n!

B. (n-1)!

C. (n+1)!

D. $n \times (n+1)!$

Answer: C

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8. Let $n = 1! + 4! + 7! + \ldots + 400!$ then ten's digit of n is

A. 1

B. 6

C. 2

D. 7

Answer: B

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9. $\frac{1}{2!}+\frac{2}{3!}+\frac{3}{4!}+\ldots+\frac{n}{(n+1)!}=$

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

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

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

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

Answer: D

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10. $\frac{1}{3.1!} + \frac{1}{4.2!} + \frac{1}{(n+2)} = \dots$

A. $1/2$

B. $1/4$

C. $1/6$

D. $1/8$

Answer: A

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11. $\frac{1}{n!}+\frac{1}{(n+1)!}+\frac{1}{(n+2)!}=$

A. $\frac{n^2+n+11}{(n-1)!}$

B. $\frac{n^2+4n+5}{(n+2)!}$

C. $\frac{n^2+6n+3}{(n+1)!}$

D. none

Answer: B

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12. Let $a_n\frac{10^n}{n!}$ for $0 \le n \le 1$ then the minimum value of $n!(1-n)!$ is attained when a value of n=

A. 11

B. 20

C. 10

D. 8

Answer: C

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13. IF n is an integer with $0 \leq n \leq 11$ then the minimum value of $n!(11-n)!$ is attained when a value of n=

A. 5

B. 7

C. 9

D. 11

Answer: A

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14. The remainder when $x = 1! + 2! + 3! + 4! + \ldots + 100!$ is divided by 240, is

A. 153

B. 33

C. 73

D. 187

Answer: A

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15. IF ${}^{n}P_{6} = 42^{n}P_{5}$ then n=

A. 45

B. `40

C. 47

D. 12

Answer: C

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16. IF ${}^{(n+1)}P_7 = 72^nP_5$ then n=

A. 11

B. 10

C. 9

D. 12

Answer: A

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17. IF ${}^{(2n-1)}P_{n-1} : {}^{(2n-1)}P_n = 3 : 5$ then n=

A. 4

B. 5

C. 6

D. 3

Answer: A

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18. IF ${}^{n+5}P_{n-1} = \frac{11(n-1)}{2} {}^{n+3}P_n$ then the value of n is

A. 2 or 6

B. 2 or 11

C. 7 or 11

D. 6 or 7

Answer: D

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19. IF $^{10}p_r = 5040$ then r=

A. 4

B. 9

C. 8

D. 5

Answer: A

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20. IF ${}^{15}P_{r-1} : {}^{16}P_{r-2} = 3 : 4$ then r=

A. 10

B. 14

C. 6

D. 8

Answer: B

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21. IF ${}^{20}P_{r} : {}^{20}P_{r-1} = 15 : 1$ then r=

A. 10

B. 14

C. 6

D. 8

Answer: C

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22. IF ${}^{12}P_r = {}^{11}P_6 + 6\,{}^{11}P_5$, then r=

A. 6

B. 5

C. 7

D. none of these

Answer: A

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23. $^{15}P_8 = A + 8.\,^{14}P_7 \Rightarrow A =$

A. $^{14}P_6$

B. $^{14}P_8$

C. $^{15}P_1$

D. $^{16}P_9$

Answer: B

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24. IF ${}^{(m+n)}P_2 = 90, {}^{(m-n)}P_2 = 30$ then (m,n)=

A. (10,3)

B. (9,2)

C. (8,2)

D. (7,3)

Answer: C

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25. A man has 3 sons and 6 schools within his reach . In how many ways he can send his sons to school , if no two of his sons are to read in the same school ?

A. ${}^6P_3$

B. ${}^6C_3$

C. 6^3

D. 3^6

Answer: A

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26. The number of ways in which 3 prizes can be given away to 5 boys , when each boy is eligible for only one prize is

A. ${}^5P_3$

B. ${}^5C_3$

C. 3^5

D. 5^2

Answer: A

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27. There are 50 stations on a railway line . How many different kinds of single 1st class tickets must be printed so as to enable a passenger to go from one station to another

A. 2450

B. 2230

C. 2480

D. 2135

Answer: A

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28. The total number of signals that can be made with 7 different coloured flags is

A. 128

B. 7

C. 127

D. 13699

Answer: D

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29. How many permuations can be made using all the letters of the word FLOWER ?

A. 120

B. 240

C. 480

D. 720

Answer: D

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30. The number of arrangements that can be formed by taking all the letters of the word TENALI that are to begin with T is

A. 720

B. 5040

C. 120

D. 40320

Answer: C

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31. The number of arrangements that can be formed by taking all the letters of the word VICTORY that are to end with Y Is

A. 720

B. 5040

C. 120

D. 40320

Answer: A

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32. The number of arrangements that can be made by taking all the letters of the word SQUARE that are to begin with S and end with E Is

A. 24

B. 120

C. 720

D. 30

Answer: A

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33. The number of 5 letter arrangements that can be made from the letters {M,A,G,Z,I,N,E }

A. 720

B. 2520

C. 120

D. 6720

Answer: B

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34. The number of arrangements by arranging the letters of the word FLOWER taken four at a time that are begin with F is

A. 37

B. 41

C. 60

D. 65

Answer: C

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35. The number of arrangements by arranging the letters of the word FLOWER taken four at a time that are begin with F is

A. 60

B. 120

C. 240

D. 480

Answer: C

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36. The number of 3 letter words formed that containing atlest one vowel from the letters a,b,c,d,e,f is

A. 64

B. 96

C. 120

D. 20

Answer: B

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37. Find the number of 5 letter words that can be formed using the letters of the word CONSIDER. How many of them begin with "C", how many of them end with 'R' and how many of them begin with "C" and end with "R" ?

A. 720

B. 360

C. 120

D. 40320

Answer: C

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38. The number of ways of arranging 6 players to throw the cricket ball so that oldest player may not throw first is

A. 120

B. 600

C. 720

D. 715

Answer: B

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39. The different words beging and ending with a vowel that can made with the letters of the word EQUATION is

A. 14400

B. 4320

C. 864

D. 1440

Answer: A

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40. The number of arrangements that can be made by using all the letters of the word MATRIX so that the vowels may be in the even places is

A. 144

B. 2880

C. 720

D. 5760

Answer: A

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41. 9 balls are to placed in 9 boxes : and 5 of the balls cannot fit into 3 small boxes the number of ways of arranging one ball in each of the boxes is

A. 18720

B. 18270

C. 17280

D. 12780

Answer: C

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42. Find the number of ways of arranging the letters of the word TRIANGLE so that the relative positions of the vowels and consonants are not disturbed.

A. 360

B. 180

C. 720

D. 540

Answer: C

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43. The number of arrangements than can be formed by taking all the letters of the word EQUATION so that no two consonants come together is

A. $14,400$

B. $13,600$

C. $16,200$

D. $12,500$

Answer: A

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44. The number of ways in which 5 boys and 3 girls can sit in a row so that no two girls come together is

A. $5!^{6}P_{3}$

B. $7!^{8}P_{5}$

C. $6!^{7}P_{3}$

D. $5!P_{6}$

Answer: A

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45. 10 men and 6 women are to seated in a row so that no two wowen sit together the number of ways they can ne seated is

A. $11!10!$

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

C. $\frac{10!9!}{5!}$

D. $\frac{11!10!}{5!}$

Answer: D

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46. In a class of 10 students there are 3 girls A,B,C the number of different ways that they can be arranged in a row such that no two of the the three girls are consecutive is

A. 10!

B. 7!8!

C. 7!8!/5!

D. 7!8!3!5!

Answer: C

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47. The number of ways in which 5 boys and 5 girls can sit in a row so that the boys and girls sit alternatively is

A. $14, 400$

B. $28, 800$

C. $23, 500$

D. $18, 400$

Answer: B

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48. There are n white and n black balls market 1,2,3 . . . N the number of ways in which we can arrange these balls in a row so that neighboring balls are of different colours is

A. n!

B. (2n)!

C. $2(n!)^2$

D. $\dfrac{(2n)!}{(n!)^2}$

Answer: C

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49. The number of ways in which 5 red balls , 4 black balls of different sizes can be arranged in a row so that no two balls of the same colour come together is

A. 2880

B. 3240

C. 4420

D. 5230

Answer: A

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50. The number of ways that the latters of the word 'HOTEL can be rearranged so that the vowels may come together is

A. 24

B. 48

C. 120

D. 12

Answer: B

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51. A family of 4 brothers and 3 sisters is to arranged in a row for a photograph . The number of ways in which they can be sceated if all the sisters are to sit together is

A. 5040

B. 720

C. 144

D. 576

Answer: B

52. The number of ways in which 5 boys and 5 girls can be sit in a row so that all the girls sit together is

A. 86400

B. 14400

C. 7200

D. 12600

Answer: A

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53. The number of ways in which 5 boys and 3 girls can sit in row so that all the girls and all the boys sit together is

A. 1358

B. 1440

C. 1435

D. 1354

Answer: B

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54. The number of ways in which 5 mathematics 4, physcis 2, chemistry books can be aranged in a shelf so that the books of each subject are kept together is

A. 20180

B. 42320

C. 34560

D. 38480

Answer: C

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55. The number of ways in which 5 mathematics , 4 physics , 2 chemistry books can be arranged in a shelf so that the books of mathematics books are kept together is

A. $6, 04, 800$

B. $5, 03, 200$

C. $3, 15, 400$

D. $4, 12, 850$

Answer: A

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56. The number of ways that 5 mathematics , 3 physics and 2 chemistry books can be arranged so that the three physics books kept together and the two chemistry books not together is

A. $1, 81, 440$

B. $1, 80, 430$

C. $1, 18, 316$

D. none

Answer: A

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57. The number of ways in which n books can be arranged so that two particular books are not together is

A. $(n-1)!(n-1)$

B. $(n+2)(n-1)!$

C. $(n+2)(n+1)!$

D. $(n-2)(n-1)!$

Answer: D

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58. The number of ways in which 5 boys and 4 girls can be sit in a row so that all the girls come together

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59. The number of ways that 5 students can be sit in a row.3 taller,2 shorter students so that no two shorest sit together is

A. 48

B. 24

C. 72

D. 120

Answer: C

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60. Six papers are set in examination , 2 them in Mathematics the number of different orders be given so that two mathematics papers are not together is

A. 720

B. 480

C. 240

D. 120

Answer: B

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61. The letters of the word QUESTION are arranged in all possible ways . The number of arrangements in which there are exactly 2 letters between Q and S is

A. 720

B. 5040

C. 7200

D. 40320

Answer: C

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62. A railway carriage can seat 5 each side . The number of ways a party of 4 girls and 6 boys can seat themelves so that the girls may always have the corner Q and s is

A. $17, 430$

B. $17, 431$

C. $17, 280$

D. $17, 281$

Answer: C

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63. A family consistinf of an old man 6 adults and 4 children , is to be seated in a row for dinner . The children wish to occupy the two seats at each end and the old man refuses to have a child on either side of him . The number of ways that the seating arrangements can be made for the dinner is

A. $85, 410$

B. $85, 405$

C. $85, 400$

D. $86, 400$

Answer: D

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64. IF the letters of word SACHIN are arranged in all possible ways and these words are writhin out as in dictionart then the word SACHIN appears at serial number

A. 601

B. 600

C. 603

D. 602

Answer: A

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65. The letters of the word ZENITH are permuted in all possible ways and the words thus formed are arranged as in a dictionary . The rank of the word ZENITH is

A. 616

B. 618

C. 597

D. 593

Answer: A

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66. The letters of the word KRISHNA are permuted in all possible ways and the words thus formed are rearranged as in a dictionary . The rank to the word KRISHNA is

A. 2710

B. 2856

C. 2657

D. 1993

Answer: A

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67. The letters of the word VICTORY are permuted in all possible ways and the words thus formed are arranged as in a dictionary . The rank of the word VICTROY is

A. 2896

B. 3733

C. 2597

D. 3452

Answer: B

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68. The letters of the word MASTER are permuted in all possible ways and the words thus formed are arranged as in a dictionary . The rank of the word STREAM is

A. 597

B. 480

C. 612

D. 385

Answer: A

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69. IF all permutations of the letters of the word INTER are arranged as in dictionary , then fifieth word is

A. NEIRT

B. NIERT

C. NEITR

D. NIETR

Answer: C

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70. All the numbers that can be formed , using all the digits at a time 3241 are arranged in the increasing order of magnitude . The rank of the number 3241 is

A. 12

B. 14

C. 16

D. 20

Answer: C

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71. All the numbers that can be formed using all the digits {1,2,3,4,6} are arranged in the increasing order of magnitude . The rank of the numnber 26341 is

A. 46

B. 78

C. 126

D. 148

Answer: A

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72. All the numbers that can be formed using the digits 1,2,3,4,5 are arranged in the increasing order of magnitufe . The rank of 35241 is

A. 70

B. 135

C. 275

D. 584

Answer: A

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73. All the numbers that can be formed , using the digits in the number 3402 are arranged in the increasing order of magnitude . The rank of 3402 is

A. 17

B. 42

C. 44

D. 49

Answer: A

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74. All the numbers that can be formed using the digits 1,2,3,4,5 are arranged in the decresing order of magnitude . The rank of 34215 is

A. 58

B. 62

C. 96

D. 128

Answer: A

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75. The sum of numbers formed by taking all the digits 2,4,6,8 is

A. 123320

B. 13220

C. 133320

D. none of these

Answer: C

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76. The sum of the numbers formed by taking all the digits {1,2,5,7,9} is

A. 56,67,850

B. 63,65,458

C. 66,66,6600

D. 76,61,523

Answer: C

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77. The sum of all possible numbers greaters greater than 2000 formed by using the digits 2,3,4,5 is

A. 93324

B. 96324

C. 92324

D. 36680

Answer: A

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78. Find the sum of all 4 digited numbers that can be formed using the digits 1,2,4,5,6 without repetition.

A. 479952

B. 497952

C. 545958

D. 547598

Answer: A

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79. The sum of all 4-digit numbers that can be formed using the digits 2,3,4,5,6 without repetition is

A. 533820

B. 532280

C. 533280

D. 532380

Answer: C

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80. Find the sum of all 4 digited numbers that can be formed using the digits 0,2,4,7,8 without repetition.

A. 479952

B. 497952

C. 54958

D. 54798

Answer: C

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81. The sum of the numbers formed from the digits 2,3,4,5 is

A. 1,03,124

B. 93324

C. 78456

D. 1,15,576

Answer: A

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82. The number of 3 digited numbers that can be formed from {1,2,4,5,6,8,9} is

A. 210

B. 230

C. 240

D. 250

Answer: A

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83. The number of 3 digited numbers that can be formed from {0,2,4,6,8} is

A. 50

B. 61

C. 48

D. 54

Answer: C

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84. Using the digits 0,2,4,6,8 not more than once in any number , the number of 5 digited number that can be formed is

A. 16

B. 24

C. 120

D. 96

Answer: D

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85. The number of four digited numbers greater than 7000 than can be formed from thte digits 3,5,7,8,9 is

A. 72

B. 36

C. 18

D. 144

Answer: A

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86. The number of integers than 6,000 that can be formed using the digits 3,5,6 7 and 8 , whithout repretition is

A. 216

B. 192

C. 120

D. 72

Answer: B

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87. The number of natural numbers less than 1000, in which no two digits are repeated is

A. 738

B. 792

C. 837

D. 720

Answer: A

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88. The number of four digited even numbers that can be formed with the digits 0,1,2,5,7,8 is

A. 144

B. 156

C. 150

D. 180

Answer: B

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89. The number of even numbers in between '0' and 100 is.................

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90. The number of four digited even numbers that can be formed from $\{4, 5, 6, 7, 8, 9\}$ is

A. 180

B. 156

C. 132

D. 84

Answer: A

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91. The number of four digited numbers that can be formed using the digits 2,4,5,7,8, that are divisible by 4 is

A. 72

B. 36

C. 24

D. 12

Answer: B

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92. the number of four digited numbers that can be formed using the digits 2,4,5,7,8 that are divisible by 4 is

A. 72

B. 36

C. 24

D. 12

Answer: B

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93. The number of four digited numbers that can be formed using the digits 2,4,5,7,8, that are divisible by 25 is

A. 72

B. 36

C. 24

D. 12

Answer: D

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94. The number of four digited numbers formed from the digits {2,3,4,5,6} that are divisible by 3 is

A. 48

B. 60

C. 30

D. 24

Answer: A

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95. The number of four digited numbers formed from the digits {2,3,4,5,6 } that are divisible by 6 is

A. 48

B. 60

C. 30

D. 24

Answer: C

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96. The number of 6 digited number which are not divisible 5 by that can be formed with the digits 4,5,6,7,8,9 is

A. 120

B. 720

C. 600

D. 840

Answer: C

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97. The number of four digited which are not divisible by 2 that can be formed from the digits 2,3,4,5,6 is

A. 37

B. 48

C. 45

D. 34

Answer: B

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98. The number of four digited numbers which are not divisible by 5 that can be formed by using all the digits 0,2,4,5 is

A. 2

B. 4

C. 6

D. 8

Answer: D

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99. the number of five digit numbers divisible by 5 that can be formed using the numbers 0,1,2,3,4,5 without repretition is

A. 240

B. 216

C. 120

D. 96

Answer: B

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100. the number of positive integers which can be formed by using any number of digits from 0,1,2,3,4,5 but using each digit not more than once in each number is the number of these integers that are greater than 3000 is ___

A. 1630, 1370

B. 1520, 1375

C. 1380, 250

D. 1630, 1380

Answer: D

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101. If a denotes the number of permutations of $x+2$ things taken all at a time , b be the number of permutations of x things taken 11 at a time and c the number of permutations of $x-11$ things taken all at a time such that $a = 182\,bc$, then the value of x is

A. 15

B. 12

C. 10

D. 18

Answer: B

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102. the number of 3 digited numbers that can be formed that can be formed using $\{1, 2, 3, 4, 5\}$ any number of times is

A. 125

B. 118

C. 120

D. 116

Answer: A

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103. The number of 4 letter words than can be formed using the letters of the word EXPLAIN which begin with an vowel when repetitions are allowed is

A. 1029

B. 207

C. 343

D. 2401

Answer: A

Watch Video Solution

104. The number of 5 letter that can be formed using the letters of the word DELHI which begin and end with and vowel when repetitions are allowed is

A. 125

B. 625

C. 500

D. 1350

Answer: C

Watch Video Solution

105. The number of 4 digited even number that can be formed using the digits 0,2,5,7,8 when reptition is allowed is

A. 200

B. 300

C. 900

D. 2160

Answer: B

Watch Video Solution

106. The number of 5 digited numbers that can be formed using the digits 0,1,2,3,4 that are divisible by 4 when repetition is allowed is

A. 200

B. 300

C. 900

D. 2160

Answer: C

View Text Solution

107. The number of 5 digited numbers that can be formed using the digits the digits 0,1,2,3,4,5 that are divisible by 5 when repetition is allowed is

A. 200

B. 300

C. 900

D. 2160

Answer: D

Watch Video Solution

108. The number of 4 digited numbers that can be formed using the digits 0,1,2,3,4,5 that are divisible by 6 when repetition is allowed is

A. 84

B. 148

C. 180

D. 1440

Answer: C

View Text Solution

109. The total number of seven digit numbers so that the sum of digits is even is

A. 4500

B. 45×10^3

C. 45×10^4

D. 45×10^5

Answer: D

Watch Video Solution

110. Find the number of numbers less than 2000 that can be formed using the digits, 1,2,3,4 if repetition is allowed.

A. 84

B. 148

C. 180

D. 1440

Answer: B

Watch Video Solution

111. There are unlimited number of identical balls of four different colours . How arrangements of atmost 7 balls in a row can be made by using them ?

A. 2399976

B. 21844

C. 630624

D. 181440

Answer: B

Watch Video Solution

112. The number of numbers greater than 1000 but not greater than can be formed with the digits 0,1,2,3,4 repetition of digits being allowed is

A. 375

B. 376

C. 377

D. none

Answer: A

Watch Video Solution

113. An n- digit number is a positive number with exctly n digits nine hundred distinct n - digit numbers are to be formed using only three digits 2,5, and 7 the smallest value of n for which this is possible is

A. 6

B. 7

C. 8

D. 9

Answer: B

Watch Video Solution

114. The number of quadratic expressions with the coefficients drawn from the set $\{0, 1, 2, 3\}$ is

A. 27

B. 36

C. 48

D. 64

Answer: C

Watch Video Solution

115. A three digit number n is such that the last two digits of it are equal and different from the first , the number of such n's is

A. 64

B. 72

C. 81

D. 900

Answer: C

Watch Video Solution

116. Eight different letters of an alphabet are given . Words of four letters from these are formed the number of such words with at least one letter repeated is

A. $\binom{8}{4} - {}^8P_4$

B. $8^4 + \binom{8}{4}$

C. $8^4 - {}^8P_4$

D. $8^4 - \binom{8}{4}$

Answer: C

Watch Video Solution

117. ten different letters of alphabet are given . Words with 5 letters are formed from these given letters than the number of words which have at least one letter repreated is

A. 69760

B. 30240

C. 99748

D. none

Answer: A

Watch Video Solution

118. The number of four letter words using the letters of the word MISTER in which atleast one letter is repeated is

A. 1296

B. 936

C. 360

D. none

Answer: B

Watch Video Solution

119. The number of 4 letter words that can be formed with the letters in the word EQUATION with at least one letter repeated is

A. 2400

B. 2408

C. 2416

D. 2432

Answer: C

Watch Video Solution

120. The number of four digits telephone numbers having atleast one of their digit is repeated

A. 5040

B. 4960

C. 2520

D. 2480

Answer: B

Watch Video Solution

121. The number of number between 1 and 10^{10} which contain the digit 1 is

A. $10^{10} - 9^{10} - 1$

B. 9^{10}

C. $10^{10} \, -^{10}$

D. none of these

Answer: A

Watch Video Solution

122. The number of three digits number of the form xyz with $x < y, z < y$ and $x \neq 0$ is

A. 900

B. 648

C. 720

D. 240

Answer: D

Watch Video Solution

123. A telegraph post has 5 arms . Each arm is capable of four distinct positions including the position of rest the total number of signals that can be made is

A. 1024

B. 1042

C. 1023

D. none

Answer: C

Watch Video Solution

124. There are 3 candidates for a professorship and one is to elected by the votes of 5 men . The number of ways in which the votes can be given is

A. 125

B. 15

C. 243

D. 8

Answer: C

Watch Video Solution

125. A guardian with 5 wards wishes everyone of them to study either graduation in Arts or Science or Engineering The number of ways he can make up his mind with regard to the eduation of his wards if everyone of them is fit any of those branches of study is

A. 5!

B. 243

C. 125

D. none

Answer: B

Watch Video Solution

126. 3 letters are to be posted in 5 letter boxes in a part of the town .IF all letters are not posted in the same letter box . The number of ways of posting is

A. 125

B. 120

C. 15

D. 10

Answer: B

Watch Video Solution

127. Each of the five questions in a multiple choice test has 4 possible answer . The number of different sets of possible answers is

A. $4^5 - 4$

B. $5^4 - 5$

C. 1024

D. 256

Answer: C

Watch Video Solution

128. The number of ways in which 7 distinct toys can be distributed among 3 children when each child is eligible to take all the toys is

A. 3^7

B. 4^6

C. 2^4

D. 2^5

Answer: A

Watch Video Solution

129. The number of ways that five prizes can be given to 4 boys , when each boy is eligible for all the prizes is

A. 4^5

B. 4^6

C. 2^4

D. 2^5

Answer: A

Watch Video Solution

130. The number of ways in which 10 letters can be posted in 5 letter boxes is

A. ${}^{10}P_5$

B. ${}^{10}C_5$

C. 10^5

D. 5^{10}

Answer: D

Watch Video Solution

131. The number of ways of wearing 6 different rings to 5 hands is

A. 5^6

B. 5^4

C. 2^6

D. 2^5

Answer: A

Watch Video Solution

132. The number of functions that can be defined from a set containing 25 elements into a set containing 30 elements is

A. ${}^{30}P_{25}$

B. ${}^{30}C_{25}$

C. 30^{25}

D. 25^{30}

Answer: C

Watch Video Solution

133. The numbers of the one one function that can be defind from A $= \{a, b, c\}$ into $B = \{1, 2, 3, 4, 5\}$is

A. ${}^{5}P_{3}$

B. ${}^5C_3$

C. 5^3

D. 3^5

Answer: A

Watch Video Solution

134. The number of one one functions that can be defined from $\{1, 2, 3, 4\}$ onto $\{a, b, c, d\}$ is

A. 12

B. 24

C. 18

D. 26

Answer: B

Watch Video Solution

135. The number of permutations that can be made using all the letters of the word DEEPTI is

A. $\frac{5!}{2!}$

B. $\frac{6!}{3!}$

C. $\frac{8!}{4!}$

D. $\frac{6!}{2!}$

Answer: D

Watch Video Solution

136. The number of ways to rearrange the letters of the word CHEESE is

A. 120

B. 240

C. 720

D. 6

Answer: A

Watch Video Solution

137. The number of arrangements that can be made by taking all from 6 red balls , 4 blue balls and 3 white balls of same size is

A. $\frac{15!}{7!5!3!}$

B. $\frac{12!}{6!5!3!}$

C. $\frac{16!}{4!3!2!}$

D. $\frac{13!}{6!4!3!}$

Answer: D

Watch Video Solution

138. The number of arrangements that can be made out of the letters in the expression A^4, B^3, C^5 when written in full lengths is

A. $\frac{9!}{3!2!4!}$

B. $\frac{7!}{2!3!2!}$

C. $\frac{5!}{4!3!2!}$

D. $\frac{12!}{4!3!5!}$

Answer: D

Watch Video Solution

139. IF there are m copies of each of the n differernt books s then number of different orders in which they can be arranged on a shelf is

A. $\frac{(mn)!}{m!}$

B. $(m!)^n$

C. $(mn)!$

D. $\frac{(mn)!}{(m!)^n}$

Answer: D

View Text Solution

140. In a library, there are 6 copies of one book, 4 copies each of two different books, 5 copies each of three different books and 3 copies each of two different books. Find the number of ways of arranging all these books in a shelf in a single row.

A. $\dfrac{40!}{(2!)^4(3!)^6}$

B. $\dfrac{40!}{6!.(4!)^2(6!)^3}$

C. $\dfrac{40!}{6!.4!.6!}$

D. none

Answer: B

Watch Video Solution

141. There are 3 copies of each of 4 different books . The number of ways that they can be arranged in a shelf is

A. $12!$

B. $12!/(4!)^3$

C. $12!/(3!)^4$

D. none

Answer: C

Watch Video Solution

142. The number of ways of arranging the letters AAABBBBCC in a row is

A. $\dfrac{9!}{3!4!2!}$

B. $\dfrac{10!}{2!5!3!}$

C. $\dfrac{10!}{3!4!5!}$

D. $\dfrac{9!}{3!4!5!}$

Answer: A

Watch Video Solution

143. 6 identical coins are arranged on a row the number of arrangements in which 4 are heads and 2 are tails is

A. 15

B. 120

C. 17!

D. 150

Answer: A

Watch Video Solution

144. The number of ways of painting the faces of a cube with six different colours is

A. 1

B. 6

C. 6!

D. none

Answer: A

Watch Video Solution

145. The number of permuations that can be made by using all the letters of the word MANORAMA that start with A and end with M is

A. 5040

B. 8!5!3!3!

C. 3360

D. 360

Answer: D

Watch Video Solution

Watch Video Solution

146. The number of ways in letters of the ALGEBRA can be arranged without changing the relative positions of vowels and consonatants is

A. 36

B. 54

C. 72

D. 144

Answer: C

Watch Video Solution

147. The number of ways in which the letters of the word ALGEBRA can be arranged without changing the relative positions of Vowels and consonants is

A. 36

B. 54

C. 72

D. 144

Answer: C

Watch Video Solution

148. How many ways are there to arrange the letters in the word GARDEN with the vowels in alphabetical order ?

A. 120

B. 480

C. 360

D. 240

Answer: C

Watch Video Solution

149. The number of ways in which the letters of the word MULTIPLE be arranged without changing the order of the vowels ?

A. 3360

B. 20160

C. 6720

D. none

Answer: A

Watch Video Solution

150. The number of ways in which candidates $A_1, A_2, \ldots A_{10}$ can be ranked if A_1 is always above A_2 is

A. 10!

B. 9!

C. $\frac{1}{2}9!$

D. $\frac{1}{2}10!$

Answer: D

Watch Video Solution

151. $S_1, S_2, \ldots S_{10}$ are the speakers in a conference if S_1 addresses of ways in which a specified speaker is to speak before another specified speaker is

A. 10!

B. 9!

C. $10 \times 8!$

D. $(10!)/2$

Answer: D

Watch Video Solution

152. IF eight person are to address a meeting , then the number of ways in which a specified speaker is to speak before another specified speaker is

A. 2520

B. 20160

C. 40320

D. none

Answer: B

Watch Video Solution

Watch Video Solution

153. A,B,C are three persons amongst seven persons who speak at a function . The number of ways in which it can be done if A speaks before B and B speaks before C is

A. 720

B. 840

C. 5040

D. 1680

Answer: B

Watch Video Solution

154. All the letters of the word EAMCET are arranged in all possible ways . The number of such arrangements in which no two vowels are adjacent to each other is

A. 36

B. 54

C. 72

D. 144

Answer: C

Watch Video Solution

155. How many different words can be formed by jumbling the letters in the word MISSISSIPPI in which no two s are adjacent ?

A. $6.7.\ ^8C_4$

B. $6.8.\ ^7C_4$

C. $7.\ ^8C_4.\ ^8C_4$

D. $8.\ ^6C_4,\ ^7C_4$

Answer: C

Watch Video Solution

156. The number of permutaions that can be formed by arranging all the the letters of the word 'NINETEEN ' in which no two $E's$ occur together is

A. $\dfrac{8!}{3!3!}$

B. $\dfrac{5!}{3! \times {}^6C_2}$

C. $\dfrac{5!}{3!} \times {}^6C_3$

D. $\dfrac{8!}{5!} \times {}^6C_3$

Answer: C

Watch Video Solution

157. The total number of ways in which six '+' and four '-' sign be arranged in a line such that no two - signs occur together is

A. 35

B. 30

C. 50

D. 55

Answer: A

Watch Video Solution

158. A binary sequence is an array of '0' s and 1's . The number of n- digit binary sequences which contain even number of 0 s is :

A. 2^{n-1}

B. $2^n - 1$

C. $2^{n-1}-1$

D. 2^n

Answer: A

Watch Video Solution

159. n bit strings are made by filling the digits 0 or 1 . The number of string in which there are exactly k zeros with no two '0' s consecutive is

A. ${}^{(n-k)}C_k$

B. ${}^{(n-k+1)}C_k$

C. ${}^{(n-k-1)}C_k$

D. none

Answer: B

View Text Solution

160. There are 12 intermediate stations on a railyway line . The number of ways that a train can be made to stop at 4 of these intermediate stations no two of these halting stations being consecutive

A. 125

B. 126

C. 127

D. 130

Answer: B

Watch Video Solution

161. The number of arrangements that can be formed by taking all the letters of the word MISSISSIPI so that all Ss come together is

A. $\frac{6!}{2!}$

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

C. $\frac{8!}{5!}$

D. $\frac{7!}{4!}$

Answer: D

Watch Video Solution

Watch Video Solution

162. The number of arrangements that can be made out of the letters of the word 'SUCCESS ' so that all Ss are not come together is

A. 60

B. 120

C. 360

D. 420

Answer: C

Watch Video Solution

163. The number of arrangements that can be formed by taking all the letters of the word ENGINEERING so that all Es come together is

A. $\frac{9!}{3!2!2!}$

B. $\frac{7!}{4!3!2!}$

C. $\frac{8!}{5!4!2!}$

D. $\frac{6!}{3!2!5!}$

Answer: A

Watch Video Solution

164. The different words that can be formed by using the letters of the word BHARAT so that these words will not contains B and H together is

A. 360

B. 120

C. 240

D. 480

Answer: C

Watch Video Solution

165. The number of arrangements that can be made out the letters of the word 'MISSISSIPI' so that all the S's come together and I's not come together is

A. 188

B. 186

C. 185

D. 190

Answer: B

Watch Video Solution

166. The number of arrangements that can be formed by taking all the letters of the word ENGINEERING so that all Ns come together and E's not come together is

A. $\frac{9!}{3!2!2!} - \frac{7!}{2!2!}$

B. $\dfrac{6!}{3!4!2!} - \dfrac{7!}{4!2!}$

C. $\dfrac{8!}{5!4!2!} - \dfrac{6!}{5!2!}$

D. $\dfrac{5!}{3!2!2!} - \dfrac{3!}{2!2!}$

Answer: A

Watch Video Solution

167. In how many ways can 4 identical black balls , 5 identical red balls and 6 identical green balls be arranged in a row so that at least one ball is seperated from balls of the same colour ?

A. 2399976

B. 21844

C. 630624

D. 181440

Answer: C

Watch Video Solution

168. The number of different numbers that be can be formed by using all the digits 1,2,3,4,3,2,1 so that odd digits always occupy the odd places is

A. 18

B. 26

C. 12

D. 10

Answer: A

Watch Video Solution

169. The number of 6 digited numbers less than 4,00,000 can be formed by using the digits 1,2,3,3,3,4, is

A. 180

B. 100

C. 50

D. 200

Answer: B

Watch Video Solution

170. The number of five digited numbers greater than 50000 that can be formed by using all the digits 0,1,1,5,9 is

A. 48

B. 24

C. 150

D. 30

Answer: B

Watch Video Solution

171. IF all the words (with or without meaning) having five letters formed using the letters of the word SMALL and arranged as in a dictionary , then the position of the word SMALL is

A. 46^{th}

B. 59^{th}

C. 52^{nd}

D. 58^{th}

Answer: D

Watch Video Solution

172. The letters of the word CRICKET are permuted in all possible ways and the words thus formed are rearranged as in dictionary . The rank of the word CRICKET is

A. 243

B. 452

C. 531

D. 729

Answer: C

Watch Video Solution

173. If all permutations of the letters of the word AGAIN are arranged as in dictionary . Then fifieth words is

A. NAAGI

B. NAGAI

C. NAAIG

D. NAIAG

Answer: C

Watch Video Solution

174. The sum of all the numbers that can be formed by taking all digits 2,3,4,4,5 only is

A. 2399976

B. 21844

C. 6306624

D. 181440

Answer: A

Watch Video Solution

175. The number of circular permutation of 8 things taken 4 at a time is

A. 720

B. 420

C. 504

D. 35

Answer: B

Watch Video Solution

176. The number of ways in which 7 persons can sit around a rouund table is

A. 720

B. 420

C. 504

D. 35

Answer: A

Watch Video Solution

177. The number of ways in which 7 different coloured flowers be strung in the form of a garland is

A. 2520

B. 5040

C. 720

D. 360

Answer: D

Watch Video Solution

178. In how many ways can five men sit around a round table so that all shall not have the same neighbours in any arrangements is

A. 11

B. 12

C. 9

D. 10

Answer: B

Watch Video Solution

179. The number of ways that the Chief minister and the 14 ministers of our state can sit around table for a conference so that the chief minister can occupy the fixed seat is

A. 13!

B. 14!

C. 12!

D. 15!

Answer: B

Watch Video Solution

180. 20 persons were invited for a party . The number of ways that they can be arranged in a circle with the host is

A. 15!

B. 20!

C. 12!

D. 15!

Answer: B

Watch Video Solution

181. The number of ways in which 5 boy and 4 girls sit around a circular table so that no two girls sit together is

A. 5!4!

B. 5!3!

C. 5!

D. 4!

Answer: A

Watch Video Solution

182. Find the number of ways of arranging 8 men and 4 women around a circular table. In how many of them no two women come together

A. 8!

B. 4!

C. 8!4!

D. $7!^{8}P_{4}$

Answer: D

Watch Video Solution

183. The number of ways in which 7 indians and 6 pakistanies sit around a round table so that no two indians are together is

A. $(7!)^2$

B. $(6!)^2$

C. $6!7!$

D. none of these

Answer: D

Watch Video Solution

184. The number of ways in which 6 men and 5 women can dine at a round table if no two women are to sit together is given by

A. 30

B. $5! \times 4!$

C. $7! \times 5!$

D. $6! \times 5!$

Answer: D

Watch Video Solution

185. The number of ways in which 7 people can sit in a round table so that two specified people sit side by side is

A. 15

B. 240

C. 17!

D. 150

Answer: B

Watch Video Solution

186. The number of ways that a garland is made with 18 flowers such that the two specified flowers should be side by side in the garland is

A. 15

B. 120

C. 17!

D. 150

Answer: C

Watch Video Solution

Watch Video Solution

187. 12 persons are to be arranged to a round table . If two particular persons among them are not to be side by side then the the total number of arrangements is

A. $9 \times 10!$

B. $2 \times 10!$

C. $45 \times 8!$

D. $10!$

Answer: A

Watch Video Solution

188. 20 persons are invited for a party . The different number of ways in which they can be seated on a circular table with particular persons seated on either side of the host is

A. 20!

B. 2!9!

C. 2!18!

D. 18!

Answer: C

Watch Video Solution

189. A round table conference is to be held between 20 delegates of 20 countries . The number of ways that they can be seated if two particular delogates are always to sit together is

A. 20!

B. 19!

C. 18!

D. 18!2!

Answer: D

Watch Video Solution

190. the number of ways in which 6 boys and 3 girls can sit in around a round table so that all the girls come together is

A. 120

B. 720

C. 1040

D. 4320

Answer: D

Watch Video Solution

191. The number of ways in which 5 boys and 3 girls can sit around a round table so that all the girls are not come together is

A. 4210

B. 4320

C. 4560

D. 4440

Answer: B

Watch Video Solution

192. The number of ways in which 8 men be arranged round a table so that 2 particular men may not be next to each other is

A. 1440

B. 5040

C. 2520

D. 3600

Answer: D

Watch Video Solution

193. The number of ways in which 5 red beeds and 4 yellow beeds of different sizes can be made out to form a necklace so that no two yellow beads come together is

A. $6!^4P_5$

B. $4!^5P_4$

C. $\frac{6!^4P_5}{2}$

D. $\frac{4!^5P_4}{2}$

Answer: D

Watch Video Solution

194. The number of ways in which 5 red beeds and 4 yellow beeds of different sizes can be made out to form a necklace so that all the red beeds come together is

A. $\frac{3!6!}{2}$

B. $\frac{5!4!}{2}$

C. $\frac{3!5!}{2}$

D. $\frac{4!6!}{2}$

Answer: B

Watch Video Solution

195. The number of ways in which 5 pakistanics 5 indians can sit around a round table so that no two persons of the same country are to come together is

A. 2880

B. 1440

C. 2520

D. 72

Answer: A

Watch Video Solution

196. The number of ways in which 4 red roses , 4 white roses of different sizes can be made out to form a garland so that no two roses of the same colour are to come together is

A. 2880

B. 1440

C. 2520

D. 72

Answer: D

Watch Video Solution

197. 7 women and 7 men are to sit round a circular table such that three is a man on either side of every women . The seating arrangements is

A. $(7!)^2$

B. $(6!)^2$

C. 6!7!

D. 7!

Answer: C

Watch Video Solution

198. Six teachers and six students have to sit round a circular table such that there is a teacher between any two students . The number of ways in which they can sit is

A. 6!6!

B. 5!6!

C. $5!5!$

D. none

Answer: B

Watch Video Solution

199. Six boys and six girls sit along a line alternately in x ways , and along a circle again alternatively in y ways then

A. x=y

B. y=12x

C. x=10y

D. x=12y

Answer: D

Watch Video Solution

Exercise 1 B Combinations

1. If ${}^{n+1}C_3 = 4{}^nC_2$ then n=

A. 12

B. 10

C. 16

D. 11

Answer: D

Watch Video Solution

2. If ${}^nC_{12} = {}^nC_8$ then n=

A. 2

B. 12

C. 20

D. 4

Answer: B

Watch Video Solution

3. IF $^{15}C_{r+3} = {}^{15}C_{2r-3}$, then r=

A. 4 or 7

B. 5 or 6

C. 7 or 9

D. 9 or 10

Answer: C

Watch Video Solution

4. IF ${}^{15}C_{r+3} = {}^{15}C_{2r-3}$, then r=

A. 4

B. 5

C. 6

D. 7

Answer: B

Watch Video Solution

5. IF ${}^{n}C_{24} = {}^{n}C_{35}.$ then${}^{60}C_{n}$=

A. 59

B. 60

C. 75

D. 74

Answer: B

Watch Video Solution

6. If ${}^{18}C_{r} = {}^{18}C_{r+2}$ then ${}^{R}C_{5}$=

A. 56

B. 63

C. 48

D. 74

Answer: A

Watch Video Solution

7. IF ${}^{n}P_{r} = 840, {}^{n}C_{r} = 35$ then n=

A. 6

B. 7

C. 8

D. 9

Answer: B

Watch Video Solution

8. IF ${}^{n}P_{r} = 720, {}^{n}C_{r} = 120$then (n, r)=

A. 7,4

B. 6,2

C. 8,4

D. 10,3

Answer: D

Watch Video Solution

9. If ${}^{n}P_{r} = 30240$and ${}^{n}C_{r} = 252$ then the ordered pair (n,r)=

A. $(12, 6)$

B. $(10, 5)$

C. $(9, 4)$

D. $(16, 7)$

Answer: B

Watch Video Solution

10. If ${}^{n}P_{r} = {}^{n}P_{(r+1)}$ and ${}^{n}C_{r} = {}^{n}C_{r-1},$ then (n,r) =

A. $8, 9$

B. $6, 7$

C. $4, 5$

D. $3, 2$

Answer: D

Watch Video Solution

11. If ${}^{n}C_{r} = {}^{n}C_{r-1}$ and ${}^{n}P_{r+1} = 9.\,{}^{n}P_{r}$ then (n,r)=

A. (19,9)

B. (20,10)

C. (20,9)

D. (19,10)

Answer: D

Watch Video Solution

12. $^{(n+1)}C_3 - {}^{n-1}C_3$=

A. n^2

B. $(n-1)^2$

C. $(n+1)^2$

D. $2n^2$

Answer: B

Watch Video Solution

13. ${}^{2n}C_2 - 2^{n}C_2 =$

A. n^2

B. $(n-1)^2$

C. $(n+1))^2$

D. $2n^2$

Answer: A

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14. If n and r are integers such that $1 \leq r \leq n$ then $n.\,C(n-1, r-1) =$

A. $n(n, r)$

B. $n.\ c(n, r)$

C. $r.\ C(n, r)$

D. $(n-1).\ C(n, r)$

Answer: C

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15. IF n and r are positive inegers such that r $\leq n$ then ${}^{n}C_{r} + {}^{n}C_{r-1}$=

A. ${}^{2n}C_{2r-1}$

B. ${}^{(n+1)}C_{r}$

C. ${}^{n}C_{r+1}$

D. ${}^{(n+1)}C_{r+1}$

Answer: B

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16. If ${}^{n}C_{r} + {}^{n}C_{r+1} = {}^{(n+1)}C_{x}$ then x=

A. r

B. r-1

C. n

D. r+1

Answer: D

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17. If ${}^{15}C_4 + {}^{(n+5)}C_5 = {}^{16}C_5$ then n=

A. 9

B. 10

C. 12

D. 15

Answer: B

Watch Video Solution

18. ${}^{n}C_{r+1} + 2^{n}C_r + {}^{n}C_{r-1} =$

A. ${}^{(n+1)}C_{r+2}$

B. ${}^{(n+1)}C_{r+1}$

C. ${}^{(n+2)}C_{r+1}$

D. ${}^{(n+2)}C_{r+2}$

Answer: C

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19. ${}^{2n}C_{n+1} + 2.\ {}^{2n}C_n + {}^{2n}C_{n-1}$=

A. ${}^{(2n+2)}C_{n+1}$

B. ${}^{(n+1)}C_{n+1}$

C. ${}^{n}C_n$

D. none

Answer: A

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20. ${}^{n}C_{r} + 4.\ {}^{n}C_{r-1} + 6.\ {}^{n}C_{r-2} + 4.\ {}^{n}C_{r-3} + {}^{n}C_{r-4}$=

A. ${}^{n+4}C_{r}$

B. $2.\ {}^{n+4}C_{r-1}$

C. $4.\ {}^{n}C_{r}$

D. $11.\ {}^{n}C_{r}$

Answer: A

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21. For $1 \leq r \leq n,$ the value of ${}^{n}C_{r} + {}^{n-1}C_{r} + {}^{n-2}C_{r} + \ldots + {}^{r}C_{r}$ is

A. ${}^{n}C_{r} + 1$

B. ${}^{n+1}C_{r}$

C. ${}^{n+1}C_{r+1}$

D. none of these

Answer: C

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22. IF $S = \sum^{m} {}^{n+r}C_{k},$ then

A. $S + {}^{n}C_{K+1} = -{}^{n}C_{K+1}$

B. $S + {}^{n}C_{K+1} = {}^{n+m+1}C_{K+1}$

C. $S = {}^{n}C_{K} = {}^{n+m}C_{K}$

D. none of these

Answer: B

View Text Solution

23. ${}^{14}C_4 + \sum^{4} (18 - j)C_3$=

A. ${}^{14}C_5$

B. ${}^{18}C_5$

C. ${}^{18}C_4$

D. ${}^{19}C_4$

Answer: C

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24. ${}^{47}C_4 + \sum_{j=1}^{5} {}^{(52-j)}C_3 =$

A. ${}^{52}C_4$

B. ${}^{52}C_3$

C. ${}^{53}C_4$

D. ${}^{53}C_3$

Answer: A

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25. the value of ${}^{50}C_4 + \sum_{r=1}^{6} {}^{56-r}C_3$ is

A. ${}^{55}C_4$

B. ${}^{52}C_3$

C. ${}^{56}C_4$

D. ${}^{56}C_4$

Answer: D

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26. $\sum_{r=0}^{10} (40-r)C_5 =$

A. ${}^{41}C_5 = {}^{30}C_5$

B. ${}^{41}C_6 - {}^{30}C_6$

C. ${}^{41}C_5 + {}^{30}C_5$

D. ${}^{41}C_4$

Answer: B

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27. The least value of n so that ${}^{n}C_5 + {}^{n}C_6 > (n+1)C_5$ is

A. 10

B. 12

C. 13

D. 11

Answer: D

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28. The least positive intergral value of n which satisfies the inequality ${}^{n-1}C_3 + {}^{n-1}C_4 > {}^{n}C_3$ is

A. 7

B. 8

C. 9

D. 10

Answer: B

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29. IF ${}^{n}C_3 : {}^{(2n-1)}C_2 = 8 : 15$ then n=

A. 7

B. 8

C. 9

D. 10

Answer: B

Watch Video Solution

30. IF ${}^{n}C_3 : {}^{(2n-1)}C_2 = 8 : 15$ then n=

A. 5

B. 6

C. 7

D. 8

Answer: D

Watch Video Solution

31. IF $C(2n, 3) : C(n, 2) = 12 : 1$, then n=

A. 4

B. 5

C. 6

D. 8

Answer: B

Watch Video Solution

32. If ${}^{2n}C_3 : {}^{n}C_2 = 44 : 3$ then n=

A. 8

B. 2

C. 4

D. 6

Answer: D

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33. If ${}^nC_3 : {}^nC_2 = 10 : 3$, then n=

A. 5

B. 4

C. 12

D. 10

Answer: C

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34. IF ${}^{n}C_{r-1} : {}^{n}C_{r} = 2:3$ then (n , r) =

A. $(34, 14)$

B. $(15, 10)$

C. $(24, 16)$

D. $(11, 7)$

Answer: A

View Text Solution

35. IF ${}^{n}C_{r-1} : {}^{n}C_{r} : = 2:4:$ then (n,r)=

A. $(10, 4)$

B. $(9, 7)$

C. $(8, 3)$

D. $(7, 2)$

Answer: C

View Text Solution

36. IF ${}^{(n+1)}C_{(r+1)} : {}^{n}C_r : {}^{(n-1)}C_{(r-1)} = 11 : 6 : 3$ then (n,r)=

A. 1,2

B. 2,4

C. 10,5

D. 20,10

Answer: C

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37. IF ${}^{n}C_{(r-1)} = 36, {}^{n}C_{r} = 84, {}^{n}C_{r+1} = 126$, then r=

A. 1

B. 3

C. 5

D. 7

Answer: B

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38. ${}^{n}C_{r-1} = 330, {}^{n}C_{r} = 462, {}^{n}C_{r+1} = 462 \Rightarrow r =$

A. 3

B. 4

C. 5

D. 6

Answer: C

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39. Prove that $\dfrac{{}^{4n}C_{2n}}{{}^{2n}C_{n}} = \dfrac{1.3, 5......(4n-1)}{\{1.3.5....(2n-1)\}^{2}}$

A. $[1.3.5. . . (4n - 1)][1.3.5. . . (2n - 1)]$

B. $[1.3.5. . . (4n - 1)] : [1.3.5. . . (2n - 1)]^2$

C. $[1.3.5. . . (4n - 1)]^2 : \big] [1.3.5. . . (2n - 1)]$

D. $[1.3.5. . . (4n - 1)]^2 [1.3.5. . . (2n - 1)]^2$

Answer: B

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40. $\dfrac{2^n [1.3.5. . . (2n - 1)]}{n!} =$

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

B. ${}^{2n}P_C$

C. ${}^{3n}C_n$

D. $\dfrac{2n[2+(n-1)2]}{n!}$

Answer: A

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41. If $S_n = \sum_{r=0}^{n} \frac{1}{{}^nC_r}$ and $T_n = \sum_{r=0}^{n} \frac{r}{{}^nC_r}$ then $\frac{t_n}{s_n}$ =

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

B. $\frac{2n-1}{2}$

C. $n-1$

D. $\frac{1}{2}n-1$

Answer: A

Watch Video Solution

42. The ratio of ${}^{24}C_r$ to ${}^{25}C_r$ when each of them has the greatest value possible is

A. $12 : 35$

B. $13 : 25$

C. $13 : 24$

D. $1 : 2$

Answer: B

43. The difference between the greatest values of $^{15}C_r$ and $^{12}C_r$ is

A. 5500

B. 5502

C. 5508

D. 5511

Answer: D

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44. The number of ways in which 6players can be selected from a batch of 10 players is

A. 320

B. 210

C. 430

D. 160

Answer: B

Watch Video Solution

45. The number of ways in which 5players are selected from 10 players so that 3 particular players are always included is

A. 21

B. 26

C. 34

D. 45

Answer: A

Watch Video Solution

46. The number of ways that 6 questions can choose out of 9 question so that the first and the last question are always included is

A. 35

B. 56

C. 84

D. none of these

Answer: A

Watch Video Solution

47. The number of ways that a cricket eleven can be chosen out of a batch of 15 players so that a player excluded is

A. 364

B. 1001

C. 1365

D. 220

Answer: A

Watch Video Solution

48. The number of ways in which a term of eleven players can be selected from 22 players always including 2 them and excluding 4 of them is

A. ${}^{16}C_{11}$

B. ${}^{16}C_5$

C. ${}^{16}C_9$

D. ${}^{20}C_9$

Answer: C

Watch Video Solution

49. The number of ways in which 7 players can be selected from a batch of 12 players so that 3 paticular players are always included are and 2 particular players are always excluded is

A. 35

B. 46

C. 51

D. 63

Answer: A

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50. A father takes 8 children 3 at a time to the zoo , as often as he can take without the same three together more than once . If the number of times each children can go is x and the number of times he can go is y , then (x,y)=

A. $(21, 53)$

B. $(20, 56)$

C. $(20, 53)$

D. $(21, 56)$

Answer: D

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51. A person wishes to make up as many different parties of 10 as he can out of 20 friends each party consisting of the same number . In how many of the parties the same man is found ?

A. 380

B. 19

C. 90378

D. 92378

Answer: D

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52. A guard of 12 men is formed a group of n soldiers . It is found that 2 particular solders A and B are 3 times as often together on guard as 3 particular solders C,D,& E. Then n=

A. 31

B. 32

C. 41

D. 42

Answer: B

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53. From a company 15 soldiers any 4 are from 8 male & 7 female applicants if the selection is to consist of either all males or all females is

A. 1365

B. 4095

C. 5460

D. 131040

Answer: C

View Text Solution

54. The number of ways of selecting 6 clerks from 8 male &7 female applicants if the selection is to consist of either all males or all females is

A. 25

B. 30

C. 35

D. 40

Answer: C

Watch Video Solution

55. The number of ways a committee consisting of 4 men and 2 women can be formed from 6 men and 4 women is

A. 90

B. 120

C. 140

D. 180

Answer: A

Watch Video Solution

56. A group cotains 6 men and 3 women . A committee is to be formed with 5 people containing 3 men and 2 women . The number of different committees that can be formd is

A. ${}^9C_5$

B. ${}^6C_3 \times {}^3C_2$

C. ${}^6C_3$

D. ${}^3C_2$

Answer: B

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57. Out of 6 gentlmen and 4 ladies a committee of 5 is to be formed . The number of ways in which this can be done so as to include exactly 2 ladies is

A. 90

B. 120

C. 140

D. 180

Answer: B

Watch Video Solution

58. Find the number of ways of selecting 3 vowels and 2 consonants from the letters of the word EQUATION.

A. 50

B. 30

C. 36

D. 48

Answer: B

Watch Video Solution

59. The number of ways that 3 English , 3 hindi & Telugu books can be chosen from a shelf containing 5 English , 4 hindi and 3 Telugu books is

A. 10

B. 20

C. 40

D. 60

Answer: C

Watch Video Solution

60. In how many ways can 5 red and 4 while balls be drawn from a bag containing to 10 red and 8 white balls

A. ${}^{8}C_{5} \times {}^{10}C_{4}$

B. ${}^{10}C_{5} \times {}^{8}C_{4}$

C. ${}^{18}C_{9}$

D. none

Answer: B

Watch Video Solution

61. How many different committee of 5 can be formed from 6 men and 4 women on which exactly 3 men and 2 women serve ?

A. 6

B. 20

C. 60

D. 120

Answer: D

Watch Video Solution

62. 6 jobs are vacant in an office 8 men and 5 women have applied for these posts In how many ways can 't these posts be filled such that men and women should be given equal number of posts ?

A. ${}^{55}C_8 \times {}^5C_2$

B. ${}^8C_3 \times {}^5C_3$

C. 344

D. 45

Answer: B

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63. In how many ways can 8 Indians, 4 Americans and 4 Englilshmen be seated in a erow so that all persons of the same nationaslity sit together.

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64. A box contains 2 white balls 3 black balls and 4 red balls . The number of ways in which there ballls can be drawn from the box so that at least one of the balls is black is

A. 74

B. 84

C. 64

D. 20

Answer: C

Watch Video Solution

65. There are two cars of which one holds not more than 5 and the other not more than 4. In how many ways can a party of 8 people go for excursion in the two cars?

A. 8400

B. 126

C. 124

D. 6400

Answer: B

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66. From 6 gentlmen and 4 ladies a committee of 5 is to be formed, The number of ways in which this can be done so as to always include at least one lady is?

A. 301

B. 423

C. 285

D. 246

Answer: D

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67. A student is to answer 10 out 13 questions in an examination such that he must choose atleast 4 from the first five questions, the number of choices available to him is ?

A. 196

B. 280

C. 346

D. 140

Answer: D

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68. A cricket 11 is to be selected out of 14 players of whom 5 are bowlers . The number of ways in which this can be done so as to include atleast 3 bowlers is

A. ${}^{9}C_{8} \times {}^{5}C_{3} + {}^{9}C_{7} \times {}^{5}C_{4} + {}^{9}C_{6} \times {}^{5}C_{5}$

B. ${}^{9}C_{6} \times {}^{5}C_{3} + {}^{9}C_{4} \times {}^{5}C_{2} + {}^{9}C_{5} \times {}^{5}C_{3}$

C. ${}^{9}C_{5} \times {}^{5}C_{3} + {}^{9}C_{3} \times {}^{5}C_{2} + {}^{9}C_{4} \times {}^{5}C_{2}$

D. ${}^{9}C_{3} \times {}^{5}C_{4} + {}^{9}C_{5} \times {}^{5}C_{3} + {}^{9}C_{3} \times {}^{5}C_{4}$

Answer: A

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69. A cricket club consists of 16 members of which only 6 can bowl . The number of ways that eleven can be choosen to include atleast four bowels is

A. 3312

B. 1545

C. 2080

D. 3121

Answer: A

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70. A committee of 5 is to be formed from 6 boys and 5 girls . The number of ways that the committee can be formed so that the committee contains at least one boy and one girl is

A. 248

B. 455

C. 720

D. 1025

Answer: B

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71. Out of 8 boys and 5 girls a committee of 6 . The number of ways in which this can be done so as to include atleast two boys and one girls is

A.

$$^8C_5 \times {}^5C_1 + {}^8C_4 \times {}^5C_2 + {}^8C_3 \times {}^5C_3 + {}^8C_2 \times {}^5C_4$$

B.

$$^8C_4 \times {}^5C_2 + {}^8C_3 \times {}^5C_2 + {}^8C_3 \times {}^5C_3 + {}^8C_2 \times {}^5C_2$$

C.

$$^8C_2 \times {}^5C_3 + {}^8C_2 \times {}^5C_1 + {}^8C_2 \times {}^5C_2 + {}^8C_2 \times {}^5C_3$$

D.

$$^8C_6 \times {}^5C_3 + {}^8C_4 \times {}^5C_3 + {}^8C_4 \times {}^5C_3 + {}^8C_5 \times {}^5C_2$$

Answer: A

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72. A cricket term of 11 players is to formed from 16 players including 5 bowlers and 2 wicket keepers . The number of ways that a term can be formed so that the tram contains at least 4 bowlers and one wicket keeper is

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73. For a cricket trem people from one class and 8 people from another class have come for selection . In how ways can we select a cricket team of 11 people taking at least 2 from the firstt class and at least one form another class ?

A. ${}^{55}C_8 \times {}^{5}C_2$

B. ${}^{8}C_3 \times {}^{5}C_3$

C. 364

D. 45

Answer: C

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74. Acommittee of 12 members is to formed from 9 women and 8 men . The number of committee in which the women are in majority is

A. 2720

B. 2702

C. 2270

D. 2278

Answer: B

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75. In how many can 4 scholarships be distributed among 6 M.P.C ., 5 Bi.P.C ., 4 C.E.C students so as not exclude any group ?

A. 6!

B. 360

C. 120

D. 240

Answer: A

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76. A student has to answer 10 out of 13 questions in an examination choosing at least 5 question from the first 6 questions. The number of choices available to the students is

A. 63

B. 91

C. 161

D. 196

Answer: C

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77. A candidate is required to answer 6 out of 10 questions which are divied into two groups each containing 5 questions and he is not permitted to attempt more than 4 from any group .in how many different ways can he make up his choice ?

A. ${}^5C_4 \times {}^5C_2 + {}^5C_3 \times {}^5C_3 + {}^5C_2 \times {}^5C_4$

B. ${}^5C_3 \times {}^5C_3 + {}^5C_2 \times {}^5C_4 + {}^5C_3 \times {}^5C_2$

C. ${}^{5}C_{3} \times {}^{5}C_{2} + {}^{5}C_{4} \times {}^{5}C_{2} + {}^{5}C_{1} \times {}^{5}C_{3}$

D. ${}^{5}C_{2} \times {}^{5}C_{3} + {}^{5}C_{3} \times {}^{5}C_{2} + {}^{5}C_{4} \times {}^{5}C_{5}$

Answer: A

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78. A candiate is required to answer 7 questions out of 12 questions which are divied into two groups each containg 6 questions He is not permitted to attempt more than 5 questions from either group .In how many different ways he can choose the 7 question ?

A. 780

B. 720

C. 120

D. 5040

Answer: A

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79. A candidate is required to answer 6 question at least one question from each section , where 1st section consists of 5 questions , 2nd section consits of 3 question and 3rd section consists of 2 question . In how many ways can he make up his choice ?

A. 225

B. 320

C. 175

D. 200

Answer: C

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80. A candidate is required to answer 6 questions by choosing at least one question from each section, where 1st section consists of 4 questions, 2 nd section consists of 3 questions and 3 rd section consists of 2 questions. In how many ways can he make up us choice?.

A. 76

B. 80

C. 95

D. 63

Answer: A

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81. How many combinations can be formed out of 8 counters marked 1,2,3,4,5,6,7,9,8 taking them 4 at a time , there being atleast one odd one even counter in each combination ?

A. 34

B. 72

C. 136

D. 68

Answer: D

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82. a man has 7 relatives , 4 women and 3 men . His wife also has 7 relative , 3 women and 4 men . The number of ways in which they can invite 3 women and 3 men so that 3 of them are the man's relative and 3 his wife 's is

A. 485

B. 584

C. 720

D. 1024

Answer: A

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83. The number of ways that a committee consisting of 5 men and 3 women can be formed from a group of men and 6 women so that 2 particular women both never be in the committee is

A. 420

B. 5040

C. 336

D. 216

Answer: C

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84. A committee of 6 is chosen from 10 men and 7 and women so as contain atleast 3 men and 2 women .If 2 particular women refuse to serve on the same committee the number of ways of forming the committee is

A. 7700

B. 8610

C. 7800

D. 810

Answer: C

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85. A party of 6 is to the formed from 10 boys and 7 girls so as to include 3 boys and 3 girls . The number of ways that the party can be formed if 2 particular girls refuse to join the same party is

A. $3, 300$

B. $3, 400$

C. $3, 600$

D. $3, 500$

Answer: C

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86. The number of ways of selecting 4 cards of an ordinary pack of playing so that exactly 3 of them are of the same donomination is

A. 2496

B. ${}^{13}C_3 \times {}^{4}C_3 \times 48$

C. ${}^{52}C_3 \times 48$

D. none of these

Answer: A

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87. The number of ways that a mixed doubles tennis game can be arranged from 7 married couples if no husband and wife play in the same game is

A. 420

B. 425

C. 430

D. 431

Answer: A

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88. The number of ways of dividingg 15 men and 15 women into 15 couples , each consisting of a man and women is

A. 1240

B. 1840

C. 1820

D. 2005

Answer: A

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89. A bag contains n white and n black balls . Pairs of balls are drawn at random without replacement successively , until the bag is empty . If the number of ways in which each pair consists of one white and one black ball is 14,400 then n=

A. 6

B. 5

C. 4

D. 3

Answer: B

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90. The total number of ways of arranging the letters of the word INDEPENDENT is

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91. Every body in a room shakes with every body clse . The total number of hand shakes is 66 . The number of person in the room is

A. 11

B. 12

C. 13

D. 14

Answer: B

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92. On the occasion of Dipawali festival each student of a class sends greeting cards to the others . If there are 20 students in the class , then the total number of greeting cards exchanged by the students is

A. ${}^{20}C_2$

B. $2.\ {}^{20}C_2$

C. $2.\ {}^{20}P_2$

D. none

Answer: B

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93. If 36 games were played at a chess tournament with each contestant playing once aginst each of the other then the number of participants is

A. 6

B. 7

C. 8

D. 9

Answer: D

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94. In chess championship 153 games have been played . If a player with every other player only once , then the number of participants

A. 17

B. 51

C. 18

D. 35

Answer: C

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95. Mr. A has c children by his first wife and Ms. B has x+1 children by her first husband . They marry and have children of their own . The whole family has 10 children Assuming that two children of the same parents do not fight ,the maximum number of fights that can take place among the children is

A. 33

B. 35

C. 38

D. none of these

Answer: A

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96. There are 20 points in plane no three of which are collinear . The number of strainght lines by joining them is

A. 190

B. 200

C. 40

D. 500

Answer: A

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97. There are 21 points in a plane no three of which are collinear . The number of triangle by joining them is

A. 1330

B. 210

C. 1850

D. 180

Answer: A

Watch Video Solution

98. How many stainght lines can be drawn by joning 10 points on a circle ?

A. ${}^{55}C_8 \times {}^{5}C_2$

B. ${}^{8}C_3 \times {}^{5}C_3$

C. 344

D. 45

Answer: D

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99. There are n points in a plane no three of which are in the same line excepting p points which are collinear . The number of triangle fomed by joining them is

A. ${}^{n}C_2$

B. ${}^{n}C_2 - {}^{n}C_2$

C. ${}^{(n-p)}C_3$

D. ${}^{n}C_2 - {}^{P}C_2 + 1$

Answer: D

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100. There are n points in a plane no three of which are in the same line excepting p points which are collinear . The number of triangle fomed by joining them is

A. ${}^{n}C_3$

B. ${}^{n}C_3 - {}^{p}C_2$

C. ${}^{(n-p)}C_2$

D. ${}^{n}C_2 - {}^{p}C_{2+1}$

Answer: B

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101. The number of lines that can be formed from 12 points is a plane of which no three of them are collinear except 6 points lie on a a line is

A. 45

B. 52

C. 50

D. 46

Answer: B

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102. Out of thirty points in a plane , eight of them are collinear . The number of strainght lines that can be formed by joining these points is

A. 540

B. 408

C. 348

D. 296

Answer: B

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103. There are 12 points in a plane ,5 only of which are collinear . The number of triangles which can be formed by joining the points is

A. 210

B. 220

C. 35

D. 105

Answer: A

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104. The sides AB,BC,CA of a Δ ABC have 3,4and 5 interior points respectively on them . The number of triangles that can be sonstructed using these points as vertices is

A. 220

B. 205

C. 235

D. none

Answer: B

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105. The number of triangles formed by joining the vertices of a hexagon is

A. 15

B. 20

C. 19

D. 12

Answer: B

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106. IF T_n dentoes the number of triangle formed with n points in plane no three of which are collinear and If $T_{n+1} - T_n = 36$ then n=

A. 7

B. 8

C. 9

D. 10

Answer: C

Watch Video Solution

107. Let T_n be the number of all possible triangles formed by joining vertices of an n - sided regular polygon . IF $T_{n+1} - T_n = 10$ then the value of n is -

A. 10

B. 8

C. 9

D. 5

Answer: D

Watch Video Solution

108. T_m denotes the number of triangles that can be formed with the vertices of a regular polygon of m sides . If $T_{m+1} - T_m = 15$ then m=

A. 3

B. 6

C. 9

D. 12

Answer: B

Watch Video Solution

109. Given 5 line segments of lengths 2,3,4,5,6 units then the number of triangle that can be formed by joining these line segaments is

A. ${}^5C_3$

B. ${}^5C_3 - 3$

C. ${}^5C_3 - 2$

D. ${}^5C_3 - 1$

Answer: B

Watch Video Solution

110. The greatest number of points of intersection of 8 lines and 4 circles is

A. 64

B. 92

C. 104

D. none

Answer: C

Watch Video Solution

111. In plane there are 37 straight lines , of which 13 pass through the point A and 11 pass through the point B . Besides , no three lines pass through one point no line passes through both points A and B and no two are parallel . then the number of intersection points the lines have is equal to

A. 535

B. 601

C. 728

D. none of these

Answer: A

View Text Solution

112. A set of m parallel lines another another set of n parallel lines in a plane . The number of parallelograms formed is

A. ${}^{m}C_2 \times {}^{n}C_2$

B. ${}^{m}C_3 \times {}^{n}C_2$

C. ${}^{m}C_3 \times {}^{n}C_3$

D. none

Answer: A

Watch Video Solution

113. The number of diagonals for an n sided polygon is

A. $\frac{n(n-1)}{2}$

B. $\frac{n(n-1)(n-2)}{6}$

C. $n(n-1)$

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

Answer: D

Watch Video Solution

114. The number of diagonal for an n sided polygon with 10 sides is

A. 35

B. 36

C. 38

D. 39

Answer: A

Watch Video Solution

115. The number oif diagonals of an octagons is

A. 5

B. 15

C. 20

D. 26

Answer: C

Watch Video Solution

116. The polygon in which the number of diagonals is equal to the number of sides is

A. pentagon

B. hexagon

C. septagon

D. octagon

Answer: A

Watch Video Solution

117. IF a polygon has 35 diagonals , then the number of sides of the polygon is

A. 25

B. 20

C. 15

D. 10

Answer: D

Watch Video Solution

118. The number of sides of a polygon having diagonals 44 is

A. 17

B. 11

C. 16

D. 18

Answer: B

Watch Video Solution

119. A polygon has 54 diagonals , then the number of its sides is :

A. 7

B. 9

C. 10

D. 12

Answer: D

Watch Video Solution

120. A regular polygon of n sides has170 digonals . Then n=

A. 12

B. 17

C. 20

D. 25

Answer: C

Watch Video Solution

121. IF a polygon of n sides has 275 diagonals then n=

A. 25

B. 35

C. 20

D. 15

Answer: A

Watch Video Solution

122. The number of triangle that can be formed by joining the vertices of a regular polygon of n sides is

A. $\frac{n(n-1)(n-2)}{6}$

B. $\frac{n(n+1)(n-2)}{6}$

C. $\dfrac{n(n+1)(n+2)}{6}$

D. none

Answer: A

Watch Video Solution

123. The number of triangle that can be formed by joining the angular points of a decagon is

A. 120

B. 720

C. 80

D. 1000

Answer: A

Watch Video Solution

124. The number of triangle whose vertices are at the vertices of an octagon but none of whose sides happen to come from the sides of the octagon is

A. 24

B. 52

C. 48

D. 16

Answer: D

Watch Video Solution

125. The number of rectangles formed in a chess board is

A. 894

B. 1296

C. 1536

D. 1834

Answer: B

126. If one square choosed randomly from chess board. Th probability of getting black colour is

Watch Video Solution

127. The number of rectangles which are not squares formed in a chess board is

A. ${}^{8}C_{2} \times {}^{8}C_{2} - 8^{2}$

B. ${}^{8}C_{2} \times {}^{8}C_{2} - \sum^{2}$

C. ${}^{9}C_{2} \times {}^{9}C_{2} - 8^{2}$

D. ${}^{9}C_{2} \times {}^{9}C_{2} - \sum 8^{2}$

Answer: D

Watch Video Solution

128. The number of ways of selecting two having common side in a chess board is

A. 112

B. 224

C. 64

D. 784

Answer: A

Watch Video Solution

129. From the two systems of lines $x - h = 0, h = 0, 1, 2, 3, 4, 5$ and $y - k = 0, 1, 2, 3$ the number if squares that can be formed is

A. 20

B. 22

C. 24

D. 26

Answer: D

View Text Solution

130. The number of ways of dividing 12 boys into 2 groups of 7,5 boys respectively is

A. $\frac{8!}{6!5!}$

B. $\frac{9!}{5!4!}$

C. $\frac{10!}{3!2!}$

D. $\frac{12!}{7!5!}$

Answer: D

Watch Video Solution

131. The number of ways of dividing 10 books into 3 group of 5,3,2, books respectively is

A. $\dfrac{8!}{6!5!4!}$

B. $\dfrac{9!}{5!4!3!}$

C. $\dfrac{10!}{5!3!2!}$

D. $\dfrac{12!}{7!5!2!}$

Answer: C

Watch Video Solution

132. The number of ways of dividing 100 scoutes into 3 squads of 50,30,20, respectively is

A. $\dfrac{80!}{60!50!40!}$

B. $\dfrac{90!}{50!40!30!}$

C. $\frac{100!}{50!30!20!}$

D. $\frac{120!}{70!50!20!}$

Answer: C

Watch Video Solution

133. The number of ways of dividing 15 cards into 3 group of 5 cards each is

A. $\frac{20!}{2!(10!)}$

B. $\frac{10!}{2!(6!)^3}$

C. $\frac{15!}{3!(5!)^3}$

D. $\frac{12!}{2!(7!)^3}$

Answer: C

Watch Video Solution

134. The number of ways that 12 prizes can be divided among 4 students so that each may have 3 prizes is

A. $15, 400$

B. $15, 300$

C. $15, 151$

D. 369600

Answer: D

Watch Video Solution

135. In how many ways can 52 cards be divided among 4 players so that each may have 13 is

A. $\dfrac{52!}{(13!)^4}$

B. $\dfrac{48!}{(12!)^4}$

C. $\dfrac{40!}{(10!)^4}$

D. $\dfrac{60!}{(15!)^4}$

Answer: A

Watch Video Solution

136. The number of ways that can be divided a pack of 52 cards amongst four players in 4 sets three having 17 cards each and the fouth one just 1 card is

A. $52!$

B. $17!$

C. $\dfrac{51!}{(171)^3}$

D. $52! \times 17!$

Answer: C

Watch Video Solution

137. In how many can a collection of 30 books be divided into two groups of 10 and 20 so that the first group always contains a particular book ?

A. ${}^{29}C_{29}$

B. ${}^{29}C_{20}$

C. ${}^{29}C_{10}$

D. ${}^{29}C_{9} \times {}^{29}C_{20}$

Answer: B

Watch Video Solution

138. The number of ways that 7 objects can be divided into 4 sets 3 of them having 2 and fourth having only 1

A. 105

B. 106

C. 210

D. 211

Answer: A

Watch Video Solution

139. 20 passengers are to travel by a double decked bus which can accommodate 13 in the upper deck and 7 in the lower deck . The number of ways that they can be distributed is

A. ${}^{20}C_8$

B. ${}^{20}C_9$

C. ${}^{20}P_7$

D. ${}^{20}C_7$

Answer: D

Watch Video Solution

140. 27 passengers are to travel by a double bus which can accommodate 12 in the upper deck and 15 in the lower deck . The number of ways that these passengers are distributed if 10 refuse to sit in the upper deck and 10 refuse to sit in the lower deck is

A. 21

B. 22

C. 23

D. 24

Answer: A

View Text Solution

141. A double decked bus can accommodate 100 passengers 40 in the upoer deack and 60 in the lower deck . In how many ways can a group of 100 passengers be accommodated is 15 refuse to sit in the lower deck and 20 refuse to sit in the upper deck ?

A. $\frac{100!}{60!40!}$

B. $\frac{100!}{30!35!}$

C. $\frac{65!}{25!40!}$

D. $\frac{65!}{35!45!}$

Answer: C

Watch Video Solution

142. At an election three wards of a town of a are canvassed by by 3,4, and 5 men respectively if 20 men volunteer , in how many can they be alloted to the different wards ?

A. $^{20}C_3$

B. $^{17}C_4$

C. $^{13}C_5$

D. $^{20}C_3.\,^{17}C_4.\,^{13}C_5$

Answer: D

Watch Video Solution

143. A boats crew consists of 16 men , 6 of whom can only row on one side and 4 only on the other . The number of ways in which the crew be arranged 8 on each side is

A. ${}^{10}C_4 \times 8! \times 8!$

B. ${}^{6}C_2 \times 8! \times 6!$

C. ${}^{16}C_6 \times 8! \times 8!$

D. ${}^{6}C_2 \times 8! \times 8!$

Answer: D

Watch Video Solution

144. A boat is to be manned by 9 crew with 4 on the stroke and 4 on row side with one to steer.there are 11 crew of which 2 can stroke only , 1 can raw only while 3 can steer only . In how many ways the crew can be arranded for the boat ?

A. 10

B. 30

C. 44

D. 17280

Answer: D

Watch Video Solution

145. There are 12 boys to be seated on 2 benches , 6 on each lench . Two of them desire to sit on the bench and two others on the other . The number of ways in which the boys can be seated on the benches is

A. $300 \times 8!$

B. $900 \times 8!$

C. $600 \times 8!$

D. $90 \times 8!$

Answer: B

Watch Video Solution

146. A tea party is arranged for 16 people along two sides of a long table with 8 chairs on each side . Four men wish to sit on one particular side and two on the other side the number of ways that they can be seated is

A. ${}^{10}C_4$

B. $8!$

C. ${}^{10}C_4 \times 8!$

D. ${}^{10}C_4 \times (8!)^2$

Answer: D

Watch Video Solution

147. A gentlemen invites a party of 10 guests to a dinner and places 6 of them at one table and the remaining 4 at another the table being round . The number of ways in which he can arrange the guests is

A. 152100

B. 151200

C. 115200

D. 123100

Answer: B

Watch Video Solution

148. Out of 7 consonants and 5 vowels how many different words can be formed each consisting of 3 consonants and 2 vowels

A. 350

B. $42,000$

C. $4,200$

D. none of these

Answer: B

Watch Video Solution

149. The number of words which can be formed with two different consontants and 1 vowels out of 7 different consonants and 3 different vowels , the vowel to lie between two consonants is

A. 63

B. 132

C. 126

D. 72

Answer: C

Watch Video Solution

150. From 6 different novels and 3 different dictionaries , 4 novels and 1 dictionary are to be selected and arranged in a row on a shelf so that the dictionary is always in the middle . Then the number of such arrangements is

A. at least 500 but less than 750

B. at least 750 but less than 1000

C. 1080

D. 10080

Answer: C

Watch Video Solution

151. If there are 5 perids in each working day of a school , then the number of ways that you can arrage 4 subjects during the working day is

A. 180

B. 220

C. 240

D. 125

Answer: C

Watch Video Solution

152. IF there are 6 periods in each working day of a school , then the number of ways that you can arrange 5 subjects the working day is

A. 600

B. 720

C. 1800

D. 1325

Answer: C

153. The number of 6 digit number which contains only odd digits and all odd digits must appear is

A. 6!

B. ${}^{5}C_{1.6}\,!$

C. ${}^{5}C_{1}.\ \dfrac{6!}{2!}$

D. none

Answer: C

Watch Video Solution

154. The number of different seven digit number that can be written using only the three digits 1,2, and 3 with the condition that the digit 2 occurs twice in each number is

A. ${}^{7}P_{2}.2^{5}$

B. ${}^{7}C_{2}.2^{5}$

C. ${}^{7}C_{2}.5^{2}$

D. none

Answer: B

Watch Video Solution

155. The number of 5 digits numbers of different digits can be formed wih 2 even and 3 odd digits is

A. ${}^{5}C_{2}.\,{}^{5}C_{3}.5!$

B. ${}^{4}C_{2}.\,{}^{5}C_{3}.5!$

C. ${}^4C_1.{}^5C_3.4(4!)$

D. ${}^4C_2.{}^5C_2.{}^5C_3.5!.{}^5C_3.4(4!)$

Answer: D

View Text Solution

156. The number of ways in which 6 Telugu, 4 Hindi and 3 English books be placed in a row on a shelf so that the books of the same subject should remain together is

A. 6!4!3!

B. 6!4!3!3!

C. $13!/6!4!3!$

D. $13! / 6!4!3!3!$

Answer: B

Watch Video Solution

157. How many three digit number can be formed using digits 1-9 no digits are repeating?

A. 500

B. 250

C. 648

D. 504

Answer: D

158. a man has 4 friends , in how many ways can he inivite one or more them to dinner ?

A. 15

B. 20

C. 25

D. 31

Answer: A

159. The number of ways in which a man can invite one or more of his 8 friends to dinner is

A. 28

B. 128

C. 240

D. 255

Answer: D

Watch Video Solution

160. The number of ways of selections one or more out of 7 given things is

A. 63

B. 63

C. 128

D. 127

Answer: D

Watch Video Solution

161. There are 10 lamps in a hall . Each one of them can be swithed on independently the number of ways in which the hall can be illuminated is

A. 10^2

B. 1023

C. 2^{10}

D. $10!$

Answer: B

Watch Video Solution

162. How many different sums can be formed with the following coins , a rupee a fifty paise , a twenty five paise , a ten paise , a five paise

A. 31

B. 32

C. 5!

D. none

Answer: A

Watch Video Solution

163. In a cross word puzzle 25 words are to be gussed of which 5 words have each an alternative solution also . The number of possible solutiions is

A. 56

B. 64

C. 72

D. 83

Answer: B

Watch Video Solution

164. In the intermediate examination a candidate has to pass in each of his 6 papers . The number of ways in within he can fail is

A. 32

B. 31

C. 64

D. 63

Answer: B

Watch Video Solution

165. the number of products that can be formed with 10 prime numbers taking two or more at a time is

A. 2^{10}

B. 2^{10-1}

C. $2^{10} - 11$

D. $2^{10} - 10$

Answer: C

Watch Video Solution

166. A question paper contains 6 question each having an alternative . The number of ways that an examine can answer one or more question is

A. 243

B. 242

C. 729

D. 728

Answer: D

Watch Video Solution

167. The maximum number of persons in a country in which no two persons have an identical set of teeth assuming that there is no person without a tooth is

A. 2^{32}

B. $2^{32} - 1$

C. $32!$

D. $32! - 1$

Answer: B

Watch Video Solution

168. Each of the four questions in a multiple choice test has 4 possible answers . The number of different sets of possible answers is

A. $4^5 - 4$

B. $5^4 - 5$

C. 1024

D. 256

Answer: D

Watch Video Solution

169. In an examination there are there are three multiple choice questions and each question has 4 choices Number of sequences in which a student can fail to get all answer correct is

A. 11

B. 15

C. 80

D. 63

Answer: D

Watch Video Solution

170. The number of ways in which the following prizes be given to a class of 20 boys first and second in mathematics fi first , and second in physics , first in chemistry and firet in english is

A. $20^4 \times 19^2$

B. $20^2 \times 19^3$

C. $20^2 \times 19^4$

D. none of these

Answer: A

Watch Video Solution

171. The number of subesets contining atmost 5 elements that can be picked out from a set of 8 elements is

A. 210

B. 219

C. 290

D. 327

Answer: B

Watch Video Solution

172. The number of all three element subsets of the $\{a_1, a_2, a_3, \ldots a_n\}$ which contain a_3 is

A. ${}^{n}C_{3}$

B. ${}^{n-1}C_{2}$

C. 2^{n-2}

D. 2^{n}

Answer: B

Watch Video Solution

173. The number all three element ofsubsets of the set $A=\{a_1, a_2, \ldots A_8\}$ contains the element a_3 is

A. 21

B. 14

C. 25

D. 10

Answer: A

Watch Video Solution

174. If one quarter of all three element subsets of the set $A = \{a_1, a_2, a_3, \ldots, a_n\}$ contains the element a_3 then n=

A. 10

B. 12

C. 14

D. none

Answer: B

Watch Video Solution

175. The number of subsets of {1,2,3,. . . .9} conatining at least one odd number is :

A. 324

B. 396

C. 496

D. 512

Answer: C

Watch Video Solution

176. If a set A has 5 elements , then the number of ways of selecting two subsets P and Q from A such that P and Q are mutually disjoint is

A. 64

B. 128

C. 243

D. 729

Answer: C

Watch Video Solution

177. Given 5 different green dyes 4 different blue dyes and 3 different red dyes . The number of combinations of dyes can be chosen taking at least one green and one blue dye is

A. 3870

B. 3715

C. 3720

D. 3876

Answer: C

Watch Video Solution

178. The number of ways in which one or more balls can be selected out of 10 white , 9 green and 7 blue balls is

A. 892

B. 881

C. 891

D. 879

Answer: D

Watch Video Solution

179. A Fruits basket contains 4 organes , 5 apples and 6 mangoes . The number of ways a persom make selection of fruits from among the fruits in te basket is

A. 210

B. 209

C. 36

D. 18

Answer: B

Watch Video Solution

180. The number of ways in which 7 perncils , 6 books and 5 pens be disposed off is

A. 336

B. 334

C. 335

D. 210

Answer: C

Watch Video Solution

181. The number of positive divisors of $2^5, 3^6, 7^3$ is

A. 14

B. 167

C. 168

D. 166

Answer: C

Watch Video Solution

182. The number of all positive divisors of $2^5, 3^4, 5^3$ is

A. 100

B. 120

C. 124

D. 130

Answer: B

Watch Video Solution

183. The number of positive divisors of 2520 is

A. 32

B. 40

C. 48

D. 60

Answer: C

Watch Video Solution

184. The number of divisors of $7!$ is

A. 24

B. 72

C. 64

D. 60

Answer: D

Watch Video Solution

185. The number of ways in which 1800 can be divided into two factors is

A. 17

B. 18

C. 36

D. 34

Answer: B

Watch Video Solution

186. The number of ways in which 1440 can be divided into two factors excluding 1 and itself is

A. 17

B. 18

C. 36

D. 34

Answer: A

Watch Video Solution

187. The number of positive odd divisors of 216 is

A. 4

B. 6

C. 8

D. 12

Answer: A

Watch Video Solution

188. The number of even divisors of 1600 is

A. 21

B. 18

C. 3

D. 20

Answer: B

Watch Video Solution

189. The number of odd factors of 36000 is

A. 62

B. 12

C. 72

D. none

Answer: B

Watch Video Solution

190. The number of divisors of the form $4n+2(n \geq 0)$ of 240 is

A. 4

B. 8

C. 10

D. 3

Answer: A

Watch Video Solution

191. The number of positive divisors of $2^6 3^5 7^4$ is equal to

A. 42

B. 120

C. 200

D. 210

Answer: D

Watch Video Solution

192. The sum of divisors of $2^5 3^4 5^3$ is

A. 60

B. 120

C. 1189188

D. 1378154

Answer: C

Watch Video Solution

193. The sum of the factors of 9 ! Which are odd and are of the form $3m+2$, where m is a natural number is

A. 40

B. 45

C. 51

D. none of these

Answer: A

Watch Video Solution

194. the number of positive integral solutions of abc= 30 is

A. 30

B. 27

C. 8

D. none

Answer: B

Watch Video Solution

195. At an election vote for any number of candidates , not greater than the number to be chosen there are 7 candidates and 4 menbers are to be chosen then the number of ways that a person can vote is

A. 95

B. 96

C. 97

D. 98

Answer: D

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196. At an election , a voter may vote for any number of candidates not greater than the number to be elected there are 10 candidates and 4 are to be elected . If a voter votes for at least one condidate then the number of ways in which he can vote is

A. 385

B. 1110

C. 5040

D. 6210

Answer: A

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197. A question paper consists of two sections having respectively 3 and 4 questions the following note is given on the paper " it is not necessary to attempt all the questions . One question from each section is compulsory " . In how many ways can a candidate select the questions ?

A. 128

B. 105

C. 144

D. 12

Answer: B

Watch Video Solution

198. eight chairs are numbered 1 to 8 two women and three men wish to occupy one chair each First the women choose the chairs from amongst the chairs marked 1 to 4 and then the men select the chairs from amongst the remaing . The number of possible arrangements is

A. ${}^{6}C_{3} \times {}^{4}C_{2}$

B. ${}^{4}C_{2} \times {}^{4}P_{3}$

C. ${}^{4}P_{2} \times {}^{6}P_{3}$

D. none

Answer: C

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199. There are four balls of different colours and four boxes of colours , same as those of the balls . The number of ways in which the balls , one each in a box could be placed such that a ball does not go to a box of its own colour is

A. 6

B. 9

C. 8

D. 24

Answer: B

Watch Video Solution

200. There are 3 letters and 3 addressed envelopes coorresponding to their . The number of ways in which the letters be placed in the envelopes so that no letter is in the right envelope is

A. 5

B. 3

C. 1

D. 2

Answer: D

Watch Video Solution

201. The number of ways in which five different letters can be put in their five addressed envelopes so that all the letters are in the wrong envelopes is

A. 10

B. 30

C. 44

D. 17280

Answer: C

Watch Video Solution

Watch Video Solution

202. The number of ways that all the letters of the word SWORD can be arranged such that no letter is in its original position is

A. 44

B. 32

C. 28

D. 20

Answer: A

Watch Video Solution

203. There are 5 different coloured balls and 5 boxes of the same colour as that of balls the number of ways that exactly two balls will go to its same coloured boxes is

A. 44

B. 32

C. 28

D. 20

Answer: D

Watch Video Solution

204. The number of functions that can be defined from a set containing 20 elements into a set containing 40 elements is

A. 2040

B. 20^{40}

C. 40^{20}

D. 30^{20}

Answer: C

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205. A set contains (12) elements . The number of subsets of the set which contain at most 2 elements is

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206. A Set contains 20 elements The number of subsets of the set which contain atleast 18 elements is

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207. A student is allowed to select atmost n books from a collection of $(2n+1)$ books if the total number of ways in which he can select book is 63, then n=

A. 4

B. 3

C. 7

D. 8

Answer: B

Watch Video Solution

208. A set contains (12) elements . The number of subsets of the set which contain at most 2 elements is

A. 6

B. 15

C. 21

D. none of these

Answer: A

Watch Video Solution

209. How many mulitiples of 2 lie between 10 and 250?

Watch Video Solution

210. If n objects are arranged in a row then the number of ways of selecting three of these objects so that no two of them are next to each other is

A. ${}^{(n-3)}C_3$

B. ${}^{(n-2)}C_3$

C. ${}^{(n+3)}C_3$

D. ${}^{(n+2)}C_3$

Answer: B

View Text Solution

211. The position vector of a point p is $r = x\hat{i} + y\hat{j} + z\hat{k}$ where $x \in N$, y $\in$ N and $a = \hat{i} + \hat{j} + \hat{k}$ if r . a = 10 then the number of possible position of P is

A. 36

B. 72

C. 66

D. none

Answer: A

Watch Video Solution

Watch Video Solution

212. Let $a = \hat{i} + \hat{j} + \hat{k}$ and let r be a variable vector such that $r.\ \hat{i}, r.\ \hat{j}, r.\ K$ are positive integers if r.a $\leq$ 12 \`

then the number of values of r is

A. ${}^{12}C_9 - 1$

B. ${}^{12}C_3$

C. ${}^{12}C_4$

D. none

Answer: B

View Text Solution

213. The number of integers x,y,z, w such that $x + y + z + w = 20$ and $x, y, w, z \geq -1$ is

A. ${}^{21}C_3$

B. ${}^{25}C_3$

C. ${}^{26}C_3$

D. ${}^{27}C_3$

Answer: D

Watch Video Solution

214. How many mulitiples of 3 lie between 10 and 250?

Watch Video Solution

215. Sum of all three digit number (no digits being zero) having the property that all digits are perfect squares , is

A. 3108

B. 6216

C. 13986

D. none of these

Answer: C

Watch Video Solution

216. In How many ways 4 sovereining be given aways when there are 5 applicants and any applicant may have either 0,1,2,3 or 4 sovereigns

A. 60

B. 65

C. 70

D. 75

Answer: C

View Text Solution

217. The number of ways of selecting 10 balls out of an unlimited number of white , red green and blue balls is

A. 236

B. 256

C. 276

D. 286

Answer: D

Watch Video Solution

218. The number of ways in which and examiner can assign 20 maks to 4 question giving not less than 2 marks to any question is

A. 280

B. 365

C. 455

D. 545

Answer: C

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219. In how many ways can an examiner assifn 30 marks to 8 questions , giving not less than two marks to any question ?

A. 116280

B. 670

C. 320

D. none

Answer: A

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220. The number of ways in which 13 gold coins can be distributed among three persons such that each one get at least two gold coins is

A. 36

B. 24

C. 12

D. 6

Answer: A

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221. The number of ways in which five different prizes can distributed to persons such tha each person can gets at least one prize is

A. 150

B. 12

C. 6

D. none

Answer: A

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222. The number of ways of distributing 8 indentical balls in 3 distinct boxes so that none of the boxes empty is

A. 5

B. ${}^8C_3$

C. 3^8

D. 21

Answer: D

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Exercise 2 Special Type Questions Set 1

1. I : IF ${}^{n+1}P_5 : {}^{n}P_5 = 3 : 2$ then n=14 .

II . IF ${}^{56}P_{r-6} : {}^{56}P_{r+3} = 30800$: 1 then r= 41.

A. Only 1 is ture

B. only II is true

C. Both I and II are true

D. neither a nor II true

Answer: C

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2. I : the unmber of ways of arranging 4 boy and 3 girls in a row always begins with a boy ends with a girls is 1440 .

II : The number of ways of arranging 5 boy and 4 girls in a line so that there will be a boy in the beging and in the ending and in the ending is 10080

A. Only 1 is ture

B. only II is true

C. Both I and II are true

D. neither a nor II true

Answer: A

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3. IF formed are arranged in dictionary order then

I : The rank of PRISON is 438

II : The rank of SIPRON is 618

A. Only 1 is ture

B. only II is true

C. Both I and II are true

D. neither a nor II true

Answer: C

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4. I : The number of 3 digited numbers that can be formed using the digits 1,2,3,4,5 when repetitions are allowed is 125 .

II THE number of 3 letter words using the letters of the word MISTER in which atleast 1 letter is repeated is 196.

A. Only 1 is ture

B. only II is true

C. Both I and II are true

D. neither a nor II true

Answer: A

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5. I : the number of ways of arranging 4 boys and 3 girls arround a circle so that all the girls sit together is 144.

II : The number of ways of arranging 6 red roses and 3 yellow roses of different sizes into a garlend so that no to yellow roses come together is 7200.

A. Only 1 is ture

B. only II is true

C. Both I and II are true

D. neither a nor II true

Answer: C

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6. I : IF ${}^{12}C_{r+1} = {}^{12}C_{3r-5}$ then r=3 or 4 .

II : If ${}^{9}C_{3} + {}^{9}C_{5} = {}^{10}C_{r}$ then r=4 or 6.

A. Only 1 is ture

B. only II is true

C. Both I and II are true

D. neither a nor II true

Answer: C

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7. There are 10 points in a plane of which no three of which no three of the points are collinear except 5 points which lie on a line .

I : The number of straight lines by joining them is 35 .

II : the number of triangles formed by joining them is 110

A. Only 1 is ture

B. only II is true

C. Both I and II are true

D. neither a nor II true

Answer: B

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8. I : the number of positive dividisors of 1080 is 32 .

II : the number of positive divisors of 10800 is 58.

A. Only 1 is ture

B. only II is true

C. Both I and II are true

D. neither a nor II true

Answer: A

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9. The number of ways in which 4 letters can be put in 4 addressed envelopes so that

I : Atlest one letter goes into wrong enevelope is 23.

II : no letter goes into the envelope ment for it is 9 .

A. Only 1 is ture

B. only II is true

C. Both I and II are true

D. neither a nor II true

Answer: C

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Exercise 2 Special Type Questions Set 2

1. If a,b,c are the values of n where ${}^nP_7 = 42{}^nP_5, {}^nP_4 = 1680, {}^nP_3 = 1320$ respectively then the ascending order of a,b,c is

A. a,b,c

B. b,c=a

C. c=b,a

D. c,a,b

Answer: C

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2. IF a,b,c are the number of 4 digited number that can be formed using the digits 2,4,5,7,8 that are divisible by 3,4,5 respectively then ascending order of a,b,c, is

A. a,b,c

B. b,c,a

C. c,b,a

D. c,a,b

Answer: C

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3. The number of functions from a set containing 3 elements into a set containing 6 elements is

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4. IF a is the number of ways of selecting 3 men from 6 men , b is the number of ways of selecting 2 men , 1 women from 4 men and 2 women and c is the number of ways of selecting 1 man , 2 women from 3 men and 3 women then the ascending of a,b,c is

A. a,b,c

B. b,c,a

C. c,b,a

D. c,a,b

Answer: C

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5. IF a,b,c be the number of positive integral integral divisors of 2520 , 1800 , 2880 then the ascending order of a,b,c is

A. a,b,c

B. b,a,c

C. c,a,b

D. a,c,b

Answer: B

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Exercise 2 Special Type Questions Set 3

1. Match the following .

Match the following.

I. If $^nP_5 : {}^nP_3 = 2 : 1$ then $n =$	a) 16
II. If $^{12}P_6 + 6\,{}^{12}P_5 = {}^{13}P_n$ then $n =$	b) 8
III. If $^nP_4 = 1680$ then $n =$	c) 6
IV. If $^nP_5 = 12\,{}^nP_4$ then $n =$	d) 5

A. a,b,c,d

B. b,c,a,d

C. c,d,b,a

D. d,c,b,a

Answer: D

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2. Match the following .

Match the following.

Given word	Rank
I. REMAST	a) 616
II. MASTER	b) 391
III. LUBER	c) 257
IV. ZENITH	d) 67

A. a,b,c,d

B. b,c,a,d

C. c,d,b,a

D. d,c,b,a

Answer: D

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3. Match the following .

I. If ${}^{n}C_4 = 210$ then $n =$	a) 6
II. If $10\ {}^{n}C_2 = 3\ {}^{n+1}C_3$ then $n =$	b) 10
III. If ${}^{n}C_6 = {}^{n}C_8$ then $n =$	c) 9
IV. If ${}^{12}C_{n+1} = {}^{12}C_{2n-5}$ then $n =$	d) 14

A. a,b,c,d

B. b,c,a,d

C. c,d,b,a

D. d,c,b,a

Answer: C

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4. Match the following .

I. The least positive integer n such that ${}^{n}C_5 + {}^{n}C_6 > {}^{(n+1)}C_5$	a) 8
II. The least positive integer n such that ${}^{(n-1)}C_4 + {}^{(n-1)}C_5 > {}^{n}C_4$	b) 9
III. The least positive integer n such that ${}^{10}C_{n-1} > 2 \cdot {}^{10}C_n$	c) 10

A. a,b,c,d

B. b,c,a,d

C. c,d,b,a

D. d,c,b,a

Answer: D

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5. Match the following .

I. If ${}^nP_r = 840,\ {}^nC_r = 35$ then $(n, r) =$ a) $(10, 4)$

II. If ${}^nP_r = 720,\ {}^nC_r = 120$ then $(n, r) =$ b) $(7, 4)$

III. If ${}^nP_r = 5040,\ {}^nC_r = 210$ then $(n, r) =$ c) $(10, 3)$

A. a,b,c,d

B. b,c,a,d

C. c,d,b,a

D. d,c,b,a

Answer: B

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Exercise 2 Special Type Questions Set 4

1. A : the number of ways in which 5 boys and 3 girls can sit in a row so that two girls come together is $5!^{6}P_5$

R : the number of ways of ways in which m (first type of different) things and n (second type of different) things $(m+1 \geq n)$ can be arranged in a row so that no two things of second kind come together is m! $^{(m+1)}P_n$

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

B. Both A and R are true but R is not correct exaplanation 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 : the number of ways in which 5 boys and 5 girls can be sit in a row so that all the girls sit together is 86400.

R : The number of ways in which m (first type of different) things and n (second type of different things cna be arranged in a row so that all the second type of things come together is n ! (m+ l) ! .

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

B. Both A and R are true but R is not correct exaplanation 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 : the number of ways in which 5 boys and 5 girls can sit in a row so that the boys and girls sit alternatively is 28800 .

R : the number of ways in which n (first type of differernt) things and n (second type of different) things cna be arranged in a row alternatively is $2 \times n! \times n!$,

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

B. Both A and R are true but R is not correct exaplanation 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 : the sum of all 4 digited numbers that can can be formed using the digits the difits 1,2,4,5,6 without repetition is 479952

R :: Sum of all r digits numbers formed by taking the given n digits (without zero) is (sum of all the n digits) $\times {}^{n-1}P_{r-1} \times (111...r$ times).

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

B. Both A and R are true but R is not correct exaplanation 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. A : IF 5 parallel lines intersect 4 parallel lines are intersecting another set of n parallel lines is ${}^{m}C_{2} \times {}^{n}C_{2}$.

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

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

C. A is true but R is false

D. A is false but R is true

Answer: A

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6. A : If there are 8 points in a plane no three of which are on the same straight line except 4 points are collinear then the number of straight lines formed by joining them is 23.

R : IF there are n points in a plane no three of which are on the same straight line except p points are collinear then the number of straight lines formed by joining them is ${}^{n}C_2 - {}^{p}C_2 + !$.

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

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

C. A is true but R is false

D. A is false but R is true

Answer: A

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7. A : The number of ways of answering one or more of 6 question is 63.

R : the number of ways of answering one or more of n questions is 2^n .

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

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

C. A is true but R is false

D. A is false but R is true

Answer: C

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8. A : The number of positive integral divisors of 27000 is 64.

R : the number of distinct positive integral divisors of $P_1^{k_1} P_2^{K_2} \ldots P_r^{k}$ where $p_1, P_2, \ldots . P_r$

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

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

C. A is true but R is false

D. A is false but R is true

Answer: A

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9. Let

$$S_1 = \sum_{j=1}^{10} j(j-1)^{10}C_p,\ S_2 = \sum_{j=1}^{10} j^{10} \text{ and } S_3 = \sum_{j=1}^{10} j^{2\,10}C_j$$

Statement -1 $S_3 = 55 \times 2^9$.

Statement -2 $S_1 = 90 \times 2^8$ and $S_2 = 10 \times 2^8$

A. Statement -1 is true , statement -2 is true statements -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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10. Statement -1 the number of ways of distributing 10 identical balls in 4 distinct boxes such that no box is empty is ${}^9C_3$.

Statement -2 the number of ways of choosing any 3 places from 9 different places is ${}^9C_3$.

A. Statement -1 is true , statement -2 is true statements -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: D

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