BRAHMASTRA SERIES

Chapter : 10 PERMUTATION AND COMBINATION

1. There are two letters a ; b , how many words of 2 letters can be made ?
   (a) 1 (b) 2 (c) 3 (d) None

2. There are 3 letters a, b, c. in how many ways there 3 letters together can be arranged ?
   (a) 6 (b) 8 (c) 5 (d) None

3. The value of 1. 3. 5. 7. 9. …….. (2n – 1) is
   (a) $\frac{2n!}{4!}$ (b) $\frac{2n!}{2.n!}$ (c) $\frac{(2n)!}{2^n.n!}$ (d) $\frac{2n!}{2.n!} \times 15_{P_r \times}$

4. The LCM of 6! ; 7! ; & 8! Is
   (a) 8! (b) 7! (c) 6! (d) None

5. HCF of 3! ; 7! & 5! Is
   (a) 5! (b) 7! (c) 3! (d) None

6. If $\frac{1}{4!} + \frac{1}{5!} = \frac{x}{6!}$; The value of x is
   (a) 26 (b) 36 (c) 52 (d) None

7. If ${}^{15}P_r = 2730$; Find r
   (a) 1 (b) 4 (c) 3 (d) None

8. How many 3 letter words can be formed by using the letters the word "SQUARE"
   (a) 100 (b) 120 (c) 150 (d) None

9. How many 3 letters words can be formed by using the letters of the word HEXAGON
   (a) 210 (b) 220 (c) 120 (d) None

10. In how many different ways can 5 persons stand in a line for a group photograph ?
    (a) 120 (b) 100 (c) 105 (d) None

11. 1^{st} ; 2^{nd} and 3^{rd} prizes are to be awarded at a CA farewell in which 13 exhibits have been entered. In how many different ways can the prizes be awarded ?
    (a) 1716 (b) 1816 (c) 1516 (d) None

12. In how many different ways can 3 students be associated with 4 chartered accountants, assuming that each chartered accountant can take at most one student ?
    (a) 24 (b) 21 (c) 30 (d) None

13. How many numbers of 3 digits can be made by using digits 3, 5, 6, 7 and 8. No. digit being repeated.
    (a) 120 (b) 60 (c) 100 (d) None

14. The number of numbers lying between 100 and 1000 can be formed with the digits 1, 2, 3, 4, 5, 6, 7 is
    (a) 210 (b) 200 (c) 110 (d) None of these

15. The number of numbers lying between 10 and 1000 can be formed with the digits 2, 3, 4, 0, 8, 9, is
    (a) 124 (b) 120 (c) 125 (d) None

16. The number of even numbers greater than 300 can be formed with the digits 1, 2, 3, 4, 5 without repetition is
(a) 110 (b) 112 (c) 111 (d) None

17. How many number of numbers of 3 digits can be made by using digits 0, 1, 2, 3, 4 ; Repetitions of digits are allowed.
(a) 120 (b) 100 (c) 24 (d) None

18. How many 4 digit even numbers can be made by using digits 0, 3, 5, 7, 9 repetitions of digits are allowed.
(a) 100 (b) 625 (c) 120 (d) None of these

19. How many telephone connections may be allowed with 8 digits from the numbers 0, 1, 2, …….. ; 9. ?
(a) 10^8 (b) 10! (c) 9! (d) ${}^{10}P_8$

20. In how many different ways 3 rings of a lock cannot combing when each ring has digits 0, 1, 2, ….. ; 9 leading to unsuccessful events ?
(a) 999 (b) 1000 (c) 10! (d) 997

21. In how many ways can three prizes be given away to 5 students when each student is eligible for any prizes ?
(a) 125 (b) 729 (c) 625 (d) None

22. How many words can be made by using all letters of the word "THAKUR" so that consonants are always together and vowels are also together.
(a) 720 (b) 96 (c) 120 (d) None

23. In how many ways 5 Sanskrit 3 English and 3 Hindi books be arranged keeping the books of the same language together ?
(a) 5!. 3!. 3!. 3! (b) 5!. 3!. 3! (c) 11! (d) None

24. How many words can be made by using all letters of the word "FAILURE" so that vowels are always coming together is
(a) 576 (b) 575 (c) 570 (d) None

25. In how many ways can the word "STRANGE" be arranged so that the vowels are never separated ?
(a) 6! × 2! (b) 7! (c) 7! ÷ 2! (d) None

26. 6 Papers are set in an examination out of which two are Mathematics. In how many ways can the papers be arranged so that 2 mathematical papers are together ?
(a) 1440 (b) 240 (c) 480 (d) 144

27. A family of 4 brothers and 3 sisters is to be arranged for a photograph in one row. In how many ways can they be seated if (i) all the sisters sit together ; (ii) no two sisters sit together ?
(a) 720 ; 1440 ; (b) 120 ; 720
(c) 240 ; 1260 (d) None.

28. Six boys and five girls are to be seated for a photograph in row such that no two girls sit together and two boys sit together. Find the number of ways in which this can be done.
(a) 86400 (b) 14400 (c) 518400 (d) None

29. In how many ways 6 persons can be arranged in a row so that 2 particular persons can never sit together.
(a) 720 (b) 480 (c) 360 (d) None

30. How many different words can be made from the letters of the word CALCULUS ?
(a) 5040 (b) 7050 (c) 2040 (d) None

31. In how many ways can 17 billiard balls be arranged if 7 of them are black, 6 red and 4 white ?
(a) 4084080 (b) 3074040
(c) 2084080 (d) None

32. In how many ways the vowels of the word "ALLAHABAD" will occupy the even places ?
(a) 120 (b) 60 (c) 30 (d) None

33. In how many ways of the word "MATHEMATICS" be arranged so that the vowels always occur together ?
(a) $11! \div (2!)^3$ (b) $(8! \times 4!) \div (2!)^3$
(c) $12! \div (2!)^3$ (d) None

34. In how many ways the word "ARRANGE" be arranged such that 2 R's do not come together ?
(a) 1000 (b) 900 (c) 800 (d) None

35. How many words can be made by using all letters of the word "TRIANGLE" so that the word "ANGLE" will always remain present is
(a) 20 (b) 60 (c) 24 (d) 32

36. How many words can be formed beginning with letter "N" with the letters of the word "SUNDAY"
(a) 6! (b) 5! (c) 4! (d) None

37. How many words can be formed beginning with letter "N" and ending in "A" with the letters of the words "SUNDAY" ?
(a) 6! (b) 5! (c) 4! (d) None

38. How many words can be made by using all letters of the word "TENDULKAR" so that each word starts with word TEN and ends with letter R and letter D, U, L are always together
(a) 5! (b) 36 (c) 6 (d) None

39. In how many ways can 5 men and 5 women be seated at a round table if :
(a) there is no restriction (b) all the five women sit together
(c) no two women sit together (d) not more than four women sit together

40. In how many ways can we place apples in a circle ?
(a) 720 (b) 360 (c) 240 (d) None

41. A committee of 3 persons out of 12 can be made in how many ways ?
(a) 220 (b) 330 (c) 120 (d) None

42. Find the number of different poker hands in a pack of 52 playing cards.
(a) 2598960 (b) 3585620 (c) 3298960 (d) None

43. The number of straight lines obtained by joining 16 points on a plane, none of them being on the same line are …….
(a) 120 (b) 110 (c) 210 (d) None

44. How many triangles can be made by using 8 points in which no point lie on a straight line.
(a) 76 (b) 56 (c) 66 (d) None

45. A committee consisting of 2 men and 2 women is to be chosen from 5 men and 5 women. In how many ways can this be done ?
(a) 120 (b) 210 (c) 150 (d) None

46. A person has 12 friends in which 8 are relatives. In how many ways can be invite 7 guests such that 5 of them are relatives ?
(a) 226 (b) 336 (c) 126 (d) None

47. The number of parallelograms that can be formed from a set of five parallel lines intersecting another set of 3 parallel lines is
(a) 16 (b) 30 (c) 12 (d) 90

48. The number of diagonals in a decagon is
(a) 32 (b) 35 (c) 50 (d) none

49. There are 12 points in a plane of which 5 are collinear. The no. of triangles is
(a) 210 (b) 225 (c) 215 (d) none

50. In how many ways can a team of 11 be chosen from 14 football players, two of them can only be goalkeeper ?
(a) 150 (b) 132 (c) 114 (d) None

51. A candidate is required to answer 6 out of 10 questions, which are divided into two groups each containing 5 questions and he is not permitted to attempt more than 4 from each group. In how many ways can he make up his choice ?
(a) 315 (b) 250 (c) 450 (d) 200

52. There are three defective bulbs out of five. Two of them are to tried in two bulb points in a dark room. Number of ways the room shall be lighted …..
(a) 7 (b) 18 (c) 15 (d) 5

53. A delegation of 3 ladies and 4 gents is to be formed out of 8 ladies and 7 gents. Mrs A refuses to serve in a committee in which Mr. B is a member, the number of such committees is
(a) 1530 (b) 1500 (c) 1520 (d) 1540

54. A delegation of 5 members is to be sent abroad out of 11 members. In how many ways can the selection be made so that 2 particular members are always included ?
(a) 95 (b) 74 (c) 84 (d) None

55. A delegation of 6 members is to be sent abroad out of 12 members. In how many ways can the selection be made so that a particular member is never included.
(a) 462 (b) 542 (c) 546 (d) None

56. There are 10 professors and 20 students out of whom a committee of 2 professors and 3 students is to be formed. In how many ways these can be done in which a particular professor is always included ?
(a) 10,260 (b) 20,260 (c) 14,360 (d) None

57. Out of 10 consonants and 4 vowels, how many words can be formed each containing 6 consonants and 3 vowels.
(a) ${}^{10}C_6 \times {}^{4}C_3$ (b) ${}^{10}C_6 \times {}^{4}C_3 \times 9!$
(c) ${}^{10}C_6 \times {}^{4}C_3 \times 10!$ (d) None

58. Find the number of words which can be formed with two different consonants & one vowels out of 7 different consonants and 3 different vowels ; the vowel should be between two consonants.
(a) 126 (b) 210 (c) 120 (d) None

59. Mr. X has 7 friends. In how many ways he can invite one or more out of them to dinner.
(a) 128 (b) 127 (c) 129 (d) None

60. There are 5 questions in a questions paper. In how many ways can a boy solve one or more questions ?
(a) 120 (b) 31 (c) 42 (d) None

61. At an election there are 5 candidates and 3 members are to be elected. A voter is entitled to vote for any number of candidates not greater than the number to be elected. The number of ways a voter choose to vote is
(a) 27 (b) 32 (c) 25 (d) None

62. The High Court has given a 6 to 3 decisions upholding a lower court ; the number of ways to give a majority decision is
(a) 250 (b) 216 (c) 225 (d) 256

63. In how many ways can zero or more letters be selected from the letters AAAAA.
(a) 4 (b) 5 (c) 6 (d) None

64. From 5 apples, 4 oranges and 3 mangoes how many selections of fruits can be made ?
(a) 120 (b) 119 (c) 118 (d) None

65. Find the number of divisors of 21600

(a) 72 (b) 76 (c) 71 (d) None

66. In how many ways 12 different books can be distributed equally among 4 persons ?

(a) $\frac{12!}{(3!)^4}$ (b) $\frac{12!}{(3!)^4.4!}$ (c) $\frac{12!}{(3!)^3}$ (d) None

67. In how many ways can a pack of 52 cards be divided equally in four sets

(a) $\frac{52!}{4!(13!)^4}$ (b) $\frac{52!}{(13!)^4}$ (c) $\frac{52!}{(4!)}$ (d) None

68. The value of ${}^{12}C_9$ is

(a) 220 (b) 400 (c) 505 (d) None

69. The value if ${}^{n+1}C_n$ is

(a) n + 1 (b) n + 4 (c) n + 2 (d) none

70. The value of $\sum_{r=1}^{5} 5_{C^2}$ is

(a) 30 (b) 34 (c) 31 (d) None

71. If ${}^{20}C_r = {}^{20}C_{r+6}$. Then the value of r is

(a) 10 (b) 7 (c) 11 (d) None

72. If ${}^{n}P_r = 1680$ and ${}^{n}C_r = 70$; the value of n and r are

(a) n = 6 ; r = 2 (b) n = 4 ; r = 1

(c) n = 8 ; r = 4 (d) None

73. If ${}^{500}C_{92} = {}^{499}C_{407} + {}^{n}C_{91}$ Then x is

(a) 501 (b) 500 (c) 502 (d) 499

74. The sum of all 4 digit numbers containing the digits 2, 4, 6, 8 without repetition is

(a) 133330 (b) 122220 (c) 21333 (d) 133320

75. Find the sum of all the digit numbers that formed with the digits 3, 2, 3, 4.
(a) 6666600 (b) 39996 (c) 33963 (d) None

76. Find the sum of all unit place unit place digit of the numbers formed with the digits 3, 4, 5, 6, 7 taken all at a time using each digit only once in each number.
(a) 6666600 (b) 600 (c) 800 (d) None

77. What is the rank or order of the word Z E N I T H in a dictionary order ?
(a) 613 (b) 615 (c) 616 (d) 618

78. What is the rank or order of the word M O T H E R. in a dictionary.
(a) 305 (b) 309 (c) 316 (d) 320

79. What is the rank or order of the word SUNDAY in a dictionary.
(a) 447 (b) 448 (c) 504 (d) None

80. The value $\frac{20!}{18!}$ is
(a) 380 (b) 280 (c) 480 (d) None of these

81. The value is $\frac{10!}{6!4!}$
(a) 210 (b) 280 (c) 480 (d) None of these

82. The value of (6. 7. 8. 9. 10) is
(a) $\frac{10!}{8!}$ (b) $\frac{10!}{5!}$ (c) $\frac{10!}{6!}$ (d) $\frac{10!}{7!}$

83. The value of (5. 6. 7. 8. 9. 10) is
(a) $\frac{10!}{4!}$ (b) $\frac{10!}{3!}$ (c) $\frac{10!}{9!}$ (d) $\frac{10!}{8!}$

84. The value of 1. 3. 5. 7. 9 …… (2n – 1) is
(a) $\frac{2n!}{4!}$ (b) $\frac{(2n)!}{2^n!}$ (c) $\frac{(2n)!}{2^n.n!}$ (d) $\frac{3n!}{n!}$

85. The value of (n + 1) (n + 2) (n + 3) ……. (2n) is

(a) $\frac{3n!}{n!}$ (b) $\frac{(2n)!}{2^n!}$ (c) $\frac{(2n)!}{2^n.n!}$ (d) $\frac{(2n)!}{n!}$

86. The value of (2. 4. 6. 8. 10) is

(a) 120 (b) 2^5.5! (c) 2^5.6! (d) None of these

87. The value of (3. 6. 9. 12. 15. 18) is

(a) 120 (b) 3^5 . 5! (c) 3^6. 6! (d) None of these

88. The value of (2 + 3) is

(a) 2! + 3! (b) 4! + 1! (c) 0! + 5! (d) None of these

89. The value of (2 × 3) is

(a) 2! × 3! (b) 4! + 1! (c) 0! + 5! (d) None of these

90. The LCM of 4!, 5! & 6! Is

(a) 6! (b) 720 (c) 6.5.(4!) (d) all of these

91. The LCM of 6!, 7! & 8! Is

(a) 8! (b) 7! (c) 6! (d) all of these

92. The HCF of 16!, 17! & 18! Is

(a) 18! (b) 17! (c) 16! (d) all of these

93. The HCF of 4!, 5! & 6! Is

(a) 6! (b) 4! (c) 5! (d) all of these

94. The LCM of 3!, 7! & 5! Is

(a) 8! (b) 7! (c) 6! (d) none of these

95. The HCF of 3!, 7! & 5! Is

(a) 5! (b) 7! (c) 3! (d) none of these

96. If $\frac{1}{4!}+\frac{1}{5!}=\frac{x}{6!}$ The value of x is

(a) 26 (b) 36 (c) 52 (d) none of these

97. If $\frac{1}{9!}+\frac{1}{10!}=\frac{x}{11!}$. The value of x is

(a) 211 (b) 122 (c) 121 (d) none of these

98. The value of n!(n + 2) is

(a) n! + (n + 1)! (b) (n +)!

(c) n! + (n + 2)! (d) None of these

99. If (n + 2)! = 60[(n + 1)!], then the value of "n" is

(a) 5 (b) 4 (c) 3 (d) None of these

100. If (n + 1)! = 90 [(n +1)!], then the value of "n" is

(a) 9 (b) 10 (c) 13 (d) None of these

101. If (n + 3)! = 56 [(n + 1)!], then the value of "n" is

(a) 5 (b) 7 (c) 3 (d) none of these

102. If (n + 2)! = 2550.n!, then the value of "n" is

(a) 50 (b) 49 (c) 39 (d) none of these

103. If (n + 1)! = 12 [(n – 2)!], then the value of "n" is

(a) 5 (b) 4 (c) 3 (d) none of these

104. If $\frac{n!}{2!(n-2)!}$ and $\frac{n!}{4!(n-4)!}$ are in the ratio 2 : 1, the value of n is

(a) 5 (b) 9 (c) 8 (d) none of these

105. If $\frac{(2n)!}{3!(2n-3)!}$ and $\frac{n!}{2!(n-2)!}$ are in the ratio of 44 : 3, the value of n is

(a) 10 (b) 9 (c) 6 (d) none of these

106. The largest value of 'n' 33! Is divisible by 2^n is

(a) 10 (b) 15 (c) 31 (d) none of these

107. The largest value of 'n' 16! Is divisible by 2^n is

(a) 16 (b) 15 (c) 14 (d) none of these

108. The largest value of 'n' 10! Is divisible by 2^n is

(a) 10 (b) 11 (c) 8 (d) none of these

109. If $\frac{n!}{(n-4)!}$ and $\frac{n!}{(n-2)!}$ are in the ratio 20 : 1, the value of n is

(a) 7 (b) 9 (c) 10 (d) none of these

110. ${}^4P_3$ is evaluated is

(a) 43 (b) 34 (c) 24 (d) None of these

111. ${}^4P_4$is equal to

(a) 1 (b) 24 (c) 0 (d) none of these

112. (-10)! Is equal to

(a) 3628800 (b) 1 (c) undefined (d) none of these

113. 0! Is a symbol equal to

(a) 0 (b) 1 (c) infinity (d) none of these

114. The value of ${}^{12}P_4$ is

(a) 11880 (b) 13434 (c) 22824 (d) none of these

115. The value of ${}^{75}P_2$ is

(a) 5550 (b) 13434 (c) 22824 (d) none of these

116. The value of ${}^{12}P_{12}$ is

(a) 1 (b) 12! (c) 0 (d) none of these

117. The value of ${}^{12}P_{14}$ is

(a) 12! (b) 14! (c) undefined (d) none of these

118. If ${}^{15}P_r = 2730$, find r

(a) 1 (b) 4 (C) 3 (d) none of these

119. The value of n! is

(a) ${}^{n}P_{n-1}$ (b) ${}^{n}P_{n}$ (c) both (d) none of these

120. The value of ${}^{n}P_r$ is

(a) $n.{}^{n-1}P_{r-1}$ (b) $\frac{n!}{(n-r)!}$ (c) both (d) none of these

121. The value of ${}^{n-1}P_r + r^{n-1}P_{r-1}$ is

(a) ${}^{n}P_r$ (b) $\frac{n!}{(n-r)!}$ (c) both (d) none of these

122. If ${}^{11}P_r = {}^{12}P_{r-1}$, the value of r is

(a) 9 (b) 4 (c) 3 (d) none of these

123. If ${}^{15}P_{r-1} : {}^{16}P_{r-2} = 3 : 4$, the value of r is

(a) 9 (b) 14 (c) 13 (d) none of these

124. If ${}^{5}P_r = 2.{}^{6}P_{r-1}$, the value of r is

(a) 2 (b) 4 (c) 3 (d) none of these

125. If ${}^{20}P_r = 13, {}^{20}P_{r-1}$, the value of r is

(a) 20 (b) 14 (c) 8 (d) none of these

126. In ${}^{n}P_r$ n is always

(a) an integer (b) a fraction

(c) a positive integer (d) none of these

127. If ${}^{n}P_4 = 12 \times {}^{n}P_2$, then n is equal to

(a) – 1 (b) 6 (c) 5 (d) none of these

128. If. ${}^{n}P_3 : {}^{n}P_2 = 3 : 1$, then n is equal is

(a) 7 (b) 4 (c) 5 (d) none of these

129. If $^{10}P_{n+1} : {}^{11}P_n = 30 : 11$, the value of 'n' is

(a) 8 (b) 5 (c) 6 (d) none of these

130. If $^{2n-1}P_n \,.\, {}^{2n-1}P_{n-1} = 22 : 7$, the value of 'n' is

(a) 8 (b) 11 (c) 10 (d) none of these

131. If $\frac{^{2n+1}P_{n-1}}{^{2n-1}P_n} = \frac{3}{5}$ calculate n.

(a) 4 (b) 8 (c) 14 (d) none of these

132. If $^{12}P_r = {}^{11}P_6 + 6.\, {}^{11}P_5$ then the value of 'n' is

(a) 4 (b) 6 (c) 8 (d) none of these

133. $^{m+n}P_2 = 56$, $^{m-n}P_2 = 30$ then

(a) m = 6, n = 2 (b) m = 7, n = 1

(c) m = 4, n = 4 (d) none of these

134. If $^{n1+n2}P_2 = 132$, $^{n1-n2}P_2 = 30$, then

(a) $n_1 = 6, n_2 = 2$ (b) $n_1 = 10, n_2 = 2$

(c) $n_1 = 9, n_2 = 3$ (d) none of these

135. If $^{m+n}P_3 = 90$ & $^{m-n}P_2 = 30$then (m, n) is

(a) (8, 2) (b) (9, 2) (c) (16, 8) (d) (7, 3)

136. The value of $^{15}C_3$ is

(a) 465 (b) 455 (c) 555 (d) none

137. The value of $^{12}C_9$ is

(a) 220 (b) 400 (c) 505 (d) none of these

138. The value of $^{50}C_{47}$ is

(a) 46500 (b) 45554 (c) 19600 (d) none of these

139. The value of $^{71}C_{71}$ is

(a) 0 (b) 4 (c) 1 (d) none of these

140. The value of ${}^{n+1}C_n$ is

(a) n + 1 (b) n + 4 (c) n + 2 (d) none of these

141. The value of $\sum_{r=1}^{5} 5_{C_r}$ is

(a) 30 (b) 34 (c) 31 (d) none of these

142. The value of ${}^{8}C_4 + {}^{8}C_3$ is

(a) ${}^{9}C_4$ (b) ${}^{9}C_5$ (c) ${}^{9}C_3$ (d) none of these

143. If ${}^{n}C_7 = {}^{n}C_5$, the value of 'n'. is

(a) 10 (b) 14 (c) 12 (d) none of these

144. If ${}^{n}C_{14} = {}^{n}C_{16}$, the value of ${}^{n}C_{28}$ is

(a) 0 (b) 4 (c) 1 (d) none of these

145. If ${}^{n}C_{10} = {}^{n}C_{14}$, the value of ${}^{n}C_{27}$, is

(a) 29650 (b) 2925 (c) 2955 (d) none of these

146. If ${}^{20}C_r = {}^{20}C_{r+6}$, the value of r is

(a) 10 (b) 7 (c) 11 (d) none of these

147. If ${}^{18}C_r = {}^{18}C_{r+2}$, the value of ${}^{r}C_5$ is

(a) 50 (b) 57 (c) 56 (d) none of these

148. If ${}^{n}P_r = 1680$ and ${}^{n}C_r = 70$, the value of n and are

(a) n = 6, r = 2 (b) n = 7, r = 1

(c) n = 8, r = 4 (d) none of these

149. If ${}^{2n}C_3 : {}^{n}C_3 = 11 : 1$, the value of 'n' is

(a) 6 (b) 7 (c) 5 (d) none of these

150. If ${}^{15}C_r : {}^{15}C_{r-1} = 11 : 5$, the value of 'r' is

(a) 6 (b) 7 (c) 8 (d) none of these

151. If ${}^{n}C_{r-1} = {}^{n}C_{3r}$, the value 'r'
(a) (n + 1)/4 (b) (n + 1)/5 (c) (n + 1)/6 (d) none of these

152. If ${}^{n+1}C_{r+1} : {}^{n}C_{r} = 11 : 6$ and ${}^{n}C_{r} : {}^{n-1}C_{r-1} = 6 : 3$, the value of n and r.
(a) n = 10, r = 2 (b) n = 10, r = 5
(c) n = 8, r = 5 (d) none of these

153. Let r and n be positive integers such that $1 \leq r \leq n$. then the value of $\frac{{}^{n}C_{r}}{{}^{n-1}C_{r-1}}$ is
(a) n/r (b) (n + 1)/r (c) (n – 1)/r (d) none of these

154. Let r and n be positive integers such that $1 \leq r \leq n$. then the value of ${}^{n-1}C_{r-1} + {}^{n-1}C_{r}$ is
(a) ${}^{n}C_{r}$ (b) ${}^{n+1}C_{r}$ (c) ${}^{n+1}C_{r+1}$ (d) none of these

155. Let r and n be positive integers such that $1 \leq r \leq n$. then the value of ${}^{n}C_{r} + 2 \times {}^{n}C_{r-1} + {}^{n}C_{r-2}$. Is
(a) ${}^{n+2}C_{r}$ (b) ${}^{n+1}C_{r}$ (c) ${}^{n+1}C_{r+1}$ (d) none of these

156. How many numbers lying between 100 and 1000 can be formed with the digits 2, 3, 4, 0, 8, 9 ; no digits being repeated ?
(a) 60 (b) 100 (c) 150 (d) none of these

157. Find the number of numbers lying between 300 and 4000 that can be formed with the digits 0, 1, 2, 3, 4, 5, 6 ; no digit being repeated.
(a) 260 (b) 700 (c) 240 (d) none of these

158. Find the number of numbers between 300 and 3000 that can be formed with the digits 0, 1, 3, 4, & 5 ; no digits being repeated.
(a) 60 (b) 70 (c) 50 (d) none of these

159. How many number of four digits greater than 2300 can be formed with the digits 0, 1, 2, 3, 4, 5, & 6 ; no digit being repeated ?
(a) 560 (b) 700 (c) 500 (d) none of these

160. Find the number of integers 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.
(a) 1631 (b) 1741 (c) 1560 (d) none of these

161. How many numbers less than 1000 and divisible by 5 can be formed no digits being repeated ?
(a) 154 (b) 117 (c) 500 (d) none of these

162. Find the numbers of even numbers that can be formed with the digits 0, 1, 2, 3, 4 ; no digit being repeated.
(a) 162 (b) 177 (c) 152 (d) none of these

163. How many even numbers of four digits can be formed with the digits 0, 1, 2, 3, 4, 5 & 6 ; no digit be repeated ?
(a) 420 (b) 720 (c) 500 (d) none of these

164. How many numbers can be formed with the digits 1, 2, 3, 4, 5, 6 taken all together in which 5 always occurs the unit place
(a) 120 (b) 220 (c) 560 (d) none of these

165. How many numbers can be formed with the digits 1, 2, 3, 4, 5, 6 taken all together in which each number beings with 1 & ends with 5
(a) 44 (b) 24 (c) 56 (d) none of these

166. How many numbers can be formed with the digits 1, 2, 3, 4, 5, 6 taken all together in which each numbers are greater than 3,00,000 ;
(a) 120 (b) 220 (c) 480 (d) none of these

167. How many numbers can be formed with the digits 1, 2, 3, 4, 5, 6 taken all together in which all the numerators are divisible by 2 ;
(a) 120 (b) 220 (c) 360 (d) none of these

168. How many numbers can be formed with the digits 1, 2, 3, 4, 5, 6 taken all together when there is no restriction.
(a) 720 (b) 820 (c) 360 (d) none of these

169. Find the sum of the 5 digit numbers which to be formed with the digits 3, 4, 5, 6, 7 using each digit only once in each number.
(a) 6666600 (b) 8888800 (c) 3333300 (d) none of these

170. How many numbers can be formed with the digits 1, 3, 5, 7, 9 when taken all at a time ; find their sum.
(a) 120, 6666600 (b) 120, 2222200
(c) 120, 3333300 (d) none of these

171. The sum of all 4 digit number containing the digits 2, 4, 6, 8 without repetitions is
(a) 133330 (b) 122220 (c) 213330 (d) 133320

172. How many three digits odd number can be formed out of the digits 1, 2, 3, 4, 5, 6 when repetition of digit is allowed ?
(a) 100 (b) 108 (c) 360 (d) none of these

173. How many six digit odd numbers greater than 6,00,000 can be formed the digits 5, 6, 7, 8, 9, 0 ; if repetition of digit is allowed ?
(a) 15552 (b) 24442 (c) 36660 (d) none of these

174. In how many ways can three prizes be given away to 5 students when each student is eligible for any prizes ?
(a) 125 (b) 729 (c) 625 (d) none of these

175. In how many ways the following 5 prizes be distributed among 10 students ? first and 2^{nd} in Maths, 1^{st} and 2^{nd} in Physics and first in Hindi.
(a) 81020 (b) 81000 (c) 36000 (d) none of these

176. In how many ways can a ten question multiple choice examination be answered if three are four choices a, b, c and d to each question if no two

consecutive question can be answered the same. In how many ways can questions can be answered ?

(a) 4.3^9 (b) 8.3^9 (c) 3.6^8 (d) none of these

177. There are stalls for 10 animals in ship and there are cows calves and horses to be transported. In how many ways can the ship load can be made of cow and horses are not less than 10 but maximum number of calves is 7 ?

(a) $4^7.(3^9)$ (b) $2^3.(3^7)$ (c) $3^6.2^8$ (d) none of these

178. How many numbers greater than 1000 but not greater than 4000 can be formed with the digits 0, 1, 2, 3, 4 repetition of digits being allowed ?

(a) 325 (b) 375 (c) 625 (d) none of these

179. Find number of 5 digit numbers that can be formed with the digits 0, 1, 2, 3, 4 if repetition of digits is allowed.

(a) 1250 (b) 7290 (c) 2500 (d) none of these

180. A gentleman has 6 friends to invite. In how many ways can he send invitation cards to them if he has three servants to carry the cards.

(a) 729 (b) 825 (c) 625 (d) none of these

181. A letter lock consists of three rings each marked with 10 different letters. In how many ways it is possible make an unsuccessful attempt to open the lock.

(a) 1000 (b) 999 (c) 625 (d) none of these

182. In a dinner party there are 10 Indians, 5 Americans and 5 English men, in how many ways can they be arranged in a row so that all the persons of the same nationality sit together ?

(a) 3! 10! 5! 5! (b) 20!

(c) 6!2!5!5! (d) none of these

183. There are 20 books of which 4 are single volume & the other are books of 8, 5 & 3 volume respectively. In how many ways can all these books be arranged on a shelf so that volumes of the same book are not separated.
(a) 3! 10! 5! 5! (b) 7! 8! 5! 3!
(c) 6!2!5!5! (d) none of these

184. You are given 6 balls of different colours (black, white, red, green violet, yellow) ; in how many ways can the 6 balls be arranged in a row, so that black and white balls may never come together.
(a) 480 (b) 580 (c) 680 (d) none of these

185. 3 women and 5 men are to sit in a row for a dinner. Find in how many ways they can be arranged so that no two women sit next to each other ?
(a) 15400 (b) 14400 (c) 12400 (d) none of these

186. Six papers are set in an examination. 2 of them in mathematics. In how many different orders can the papers be given if two mathematics paper are not successive ?
(a) 480 (b) 690 (c) 605 (d) none of these

187. How many different words can be formed with the letters of the word **'Mathematics'**.
(a) 12!/(2!)4 (b) $11! / (2!)^3$
(c) 605 (d) none of these

188. How many different words can be formed with the letters of the word **'Mathematics'**. In which vowels are together and consonants are together.
(a) $6 \times 7!$ (b) $6! \times 7!$ (c) $6! \times 7$ (d) none of these

189. In how many ways can be the letters of the word 'SALOON' be arranged if the consonants and vowels must occupy alternate place ?
(a) 48 (b) 69 (c) 36 (d) none of these

190. In how many ways can the letters of the word 'ARRANGE' be arranged so that the two R's are never together
(a) 800 (b) 900 (c) 360 (d) none of these

191. In how many ways can the letters of the word 'ARRANGE' be arranged so that the two A's are together but not the 2 R's.
(a) 240 (b) 440 (c) 360 (d) none of these

192. In how many ways can the letters of the word 'ARRANGE' be arranged so that neither the two A's nor the two R's are together.
(a) 240 (b) 440 (c) 660 (d) none of these

193. How many seven digits numbers can be formed from the digits 1, 2, 2, 2, 3, 3, 5 ? how many of them are odd ?
(a) 180, 220 (b) 440, 220
(c) 420, 240 (d) none of these

194. In how many permutations of the letters of the word "PARALLEL" all the L's don't come together.
(a) 4000 (b) 3000 (c) 5000 (d) none of these

195. How many different words can be formed with the letters of the word "UNIVERSITY" so that all the vowels are together ?
(a) 3! 7! (b) 2! 6! (c) 2! 7! (d) none of these

196. There are three copies of 4 different books. In how many ways can they be arranged on a shelf ?
(a) $\frac{12!}{(3!)^4}$ (b) $\frac{9!}{5!2!2!}$ (c) $\frac{12!}{(3!)^4 4!}$ (d) none of these

197. In how many ways 7 men sit around a table ?
(a) 7! (b) 61 (c) 5! (d) none of these

198. In how many ways can we place 7 apples in a circle ?
(a) 360 (b) 240 (c) 720 $(3!)^4$ 4! (d) none of these

199. In how many ways 6 boys and 5 girls can sit around a table so that no two girls sit next to each other ?
(a) 3! 7! (b) 5! 6! (c) 2! 71 (d) none of these

200. In a class of students there are 6 boys and 4 girls. In how many ways can they be seated around a table so that all the 4 girls sit together.
(a) 17280 (b) 12240 (c) 17200 (d) none of these

201. In how many ways 5 boys and 4 girls can be seated at a around table in which there is not restriction.
(a) 71 (b) 6! (c) 8! (d) none of these

202. In how many ways 5 boys and 4 girls can be seated at a round table in which all the 4 girls sit together.
(a) 1728 (b) 1224 (c) 2880 (d) none of these

203. How many words can be formed by taking 4 letters at a time out of the letters of the word 'MATHEMATICS'.
(a) 2454 (b) 1224 (c) 2880 (d) none of these

204. Eighteen guests have to be seated, half on each side of a long table. Four particular guest desire to it on one particulars side and three others on the other side. Determine the number of ways in which the seating arrangement can be made.
(a) $\frac{12!}{(3!)^4}$ (b) $\frac{9!}{5!2!2!}$ (c) $\frac{11!}{6!5!} \times 9! \times 9!$ (d) none of these

205. A delegations of 6 members is to be sent abroad out of 12 members. In how many ways can the selection be made so that a particular member is included ?
(a) 462 (b) 542 (c) 546 (d) none of these

206. A delegations or 6 members is to be sent abroad out of 12 members. In how many ways can the selections be made so that at a particular member is never included ?
(a) 462 (b) 542 (c) 546 (d) none of these

207. There are six students A, B, C, D, E, F. in how many ways can they be seated in a line so that C & D do not sit together ?
(a) 480 (b) 542 (c) 546 (d) none of these

208. There are six students A, B, C, D, E, F. in how many ways can a committee of 4 be formed so as to C always included ?
(a) 20 (b) 10 (c) 150 (d) none of these

209. There are six students A, B, C, D, E, F. in how many ways can a committee of 4 be formed so as to always include C but exclude E ?
(a) 5 (b) 6 (c) 4 (d) none of these

210. A committee consisting of 2 men & 2 women is to be chosen from 5 men and 6 women. In how man ways can this be done ?
(a) 150 (b) 60 (c) 40 (d) none of these

211. In how many ways can a team of 11 be chosen from 14 football players of two of them can only be goalkeeper ?
(a) 150 (b) 132 (c) 114 (d) none of these

212. A candidate is required to answer 6 out of 10 questions, which are divided into two groups each containing 5 questions and he is not permitted to attempt more than 4 from each group. In how many ways can be make up his choice ?
(a) 300 (b) 200 (c) 400 (d) none of these

213. Out of 7 men and 4 ladies a committee of 5, is to be formed. In how many ways can this be done so as to include at least 3 ladies.
(a) 8.1 (b) 62 (c) 91 (d) none of these

214. From 6 boys & 7 girls a committee of 5 is to be formed so as to include at least one girl. Find the number of ways in which this can be done ?
(a) 1281 (b) 610 (c) 420 (d) none of these

215. In an examination the question paper contains three different sections A, B & C containing 4, 5 & 6 question respectively ? in how many ways, a candidate can make a selection of 7 questions selecting at least two question from each sections ?
(a) 2700 (b) 2600 (c) 4000 (d) none of these

216. There are 10 professors & 20 students out of whom a committee of 12 professors & 3 students is to be formed. In how many ways these committee are formed in which a particular professor is included ?
(a) 10260 (b) 20260 (c) 14360 (d) none of these

217. A Party of 6 is to be formed from 10 boys & 7 girls so as to include 3 boys & 3 girls. In how many different ways can the party be formed of two particular girls refuse to join the same party ?
(a) 3500 (b) 3600 (c) 4000 (d) none of these

218. A cricket team of 11 players is to be formed from 16 players including 4 bowlers & 2 wicket keepers. In how many different ways can a team be formed to as to contain at least 3 bowlers & at least one wicket keeper.
(a) 2472 (b) 2672 (c) 2706 (d) none of these

219. From 4 officers & 8 Jawans in how many ways can 6 be chosen to include exactly one officer.
(a) 224 (b) 896 (c) 425 (d) none of these

220. From 7 Englishmen & 4 Americans a committee of 6 is to be formed in how many ways can this be done if the committee contains exactly 2 Americans
(a) 120 (b) 210 (c) 420 (d) none of these

221. From 7 Englishmen & 4 Americans a committee of 6 is to be formed, in how many ways can this be done if the committee contains at least two Americans
(A) 120 (b) 210 (c) 371 (d) none of these

222. How many words can be formed out of 10 consonants & 4 vowels such that each contains 3 consonants and 2 vowels ?
(a) 12200 (b) 14400 (c) 42000 (d) none of these

223. Find the number of words which can be formed with two different consonants & one vowel out of 7 different consonants and 3 different vowels ; the vowel should be between two consonants.
(a) 126 (b) 210 (c) 120 (d) none of these

224. Four visitors A, B, C, D arrived at a town, which has 5 hotels, in how many ways can they disperse themselves among hotels. If 4 hotels are used to accommodate them ?
(a) 120 (b) 210 (c) 420 (d) none of these

225. In how many ways the permutations of 20 students, taken 10 at a time in which 3 particular boys never occur and 2 particular girls must occur.
(a) ${}^{15}C_8$ 10! (b) ${}^{15}C_7$ 10!
(c) ${}^{15}C_8$ 11! (d) none of these

226. There are 5 questions in a question paper. In how many ways can a boy solve one or more questions ?
(a) 120 (b) 31 (c) 42 (d) none of these

227. In an examination a minimum is to be secured in each of 5 subjects for passing. In how many ways can a student fail ?
(a) 120 (b) 31 (c) 42 (d) none of these

228. Given 5 different green dyes, 4 different blue dyes & 3 different red dyes. How many combination of dyes can be chosen taking at least one green & one blue dyes.
(a) 3720 (b) 3100 (c) 4200 (d) none of these

229. A bag contains 5 red 4 green & 3 blue balls of the same colours are supposed to be distinct (not alike). In how many ways. Some balls can be drawn from the bag.
(a) $2^{11} - 1$. (b) $2^{12} - 1$. (c) $2^{13} - 1$. (d) none of these

230. A bag contains 5 red 4 green & 3 blue balls of the same colours are supposed to be distinct (not alike). In how many ways. Some balls containing at least one red & one green ball can be drawn.
(a) 3720 (b) 3968 (c) 4200 (d) none of these

231. A bag contains 5 red and 4 green & 3 blue balls of the same colours are supposed to be distinct (not alike). Some ball containing at least 1 red & at most 3 green balls can be drawn.
(a) 3720 (b) 3968 (c) 1395 (d) none of these

232. From 5 apples, 4 oranges & 3 mangoes low many selections of atleast one fruits can be made ?
(a) 119 (b) 211 (c) 42 (d) none of these

233. Find the number of divisors of 420.
(a) 119 (b) 24 (c) 42 (d) none of these

234. Find the number of divisors of 2550 except 1.
(a) 119 (b) 24 (c) 47 (d) none of these

235. Find the total number of selections of at least one red ball from a bag containing 4 red balls & 5 black balls ; balls of the same colour being identical.
(a) 19 (b) 24 (c) 42 (d) none of these

236. In how many ways 12 different books can be distributed equally among 4 persons ?
(a) $12!/(3!)^4$ (b) $12!/(3!)^3$ (c) $13!/(3!)^4$ (d) none of these

237. In how many ways 12 things be divided equally among four groups.
(a) $12!/(3!)^4$ (b) $12!/\{(3!)^4/4!\}$
(c) $13!\ 1(3!)^4$ (d) none of these

238. In how many ways can 10 different prizes be given to 5 students if one particular boy must get 4 prizes and rest of the student get any no. of prizes ?
(a) 860160 (b) 240240 (c) 420620 (d) none of these

239. Five balls of different colours are to be placed in three boxes of different sizes. Each box can hold all five balls. In how many different wages can we place the balls so that no box remains empty.
(a) 190 (b) 150 (c) 420 (d) none of these

PREVIOUS YEARS MEMORY BASED QUESTIONS

240. Six points are on a circle. The number of quadrilaterals that can be formed are :
(a) 30 (b) 360 (c) 15 (d) none of the above

241. The number of ways of arranging 6 boys and 4 girls in a row so that all 4 girls are together as :
(a) 6 ! 4! (b) 2(71. 4!) (c) 7! 4! (d) 2.(6! 4!)

242. How many numbers not exceeding. 1000 can be made from the digits 1, 2, 3, 4, 5, 6, 7, 8, 9 if repetition is not allowed.
(a) 364 (b) 585 (c) 728 (d) 819

243. A garden having 6 tall trees in a row. In how many ways 5 children stand, one in a gap between the trees in order to pose for a photograph ?
(a) 24 (b) 120 (c) 720 (d) 30

244. ${}^{15}C_3 + {}^{15}C_3$ is equal to :
(a) 16_{c3} (b) 30_{c16} (c) 15_{c16} (d) 15_{c15}

245. How many ways a team of 11 players can be made out of 15 players if one particular player is not to be selected in the term.
(a) 364 (b) 728 (c) 1,001 (d) 1,234

246. Find the number of arrangements of 5 things taken out of 12 things, in which one particular thing must always be included.
(a) 39,000 (b) 37,600 (c) 39,600 (d) 36,000

247. In how many ways 3 prizes out of 5 can be distributed amongst 3 brothers equally ?
(a) 10 (b) 45 (c) 60 (d) 120

248. There are 12 questions to be answered to be Yes or No. how many ways can these be answered ?
(a) 1024 (b) 2048 (c) 4096 (d) none

249. The letters of the word VIOLENT are arranged so that the vowels occupy even place only. The number of permutations is
(a) 144 (b) 120 (c) 24 (d) 72

250. If ${}^nP_4 = 20({}^nP_2)$ then the value of 'n' is _____
(a) – 2 (b) 7 (c) – 2 and 7 both (d) none of these

251. A man has 3 sons and 6 schools within reach, in how many ways, he can send them to school, if no two of his sons are to read in the same school ?
(a) ${}^6P_2$ (b) ${}^6P_3$ (c) 6^3 (d) 3^6

252. How many permutation can be formed from the letters of the word "DRAUGHT" , if both vowels may not be separated ?
(a) 720 (b) 1,440 (c) 140 (d) 1,000

253. If $^{13}C_6 + 2\ ^{13}C_5 + {}^{13}C_4 = {}^{15}C_x$ then x = …….
(a) 6 (b) 7 (c) 8 (d) 9

254. The total number of shake hands in a group of 10 persons to each other are ……
(a) 45 (b) 54 (c) 90 (d) 10

255. A regular polygon has 44 diagonals then the no. of sides are ……
(a) 8 (b) 9 (c) 10 (d) 11

256. In how many ways the word "ARTICLE" can be arranged in a row so that vowels occupy even places ?
(a) 132 (b) 144 (c) 72 (d) 160

257. How many different words can be formed with the letter of the word "LIBERTY"
(a) 4050 (b) 5040 (c) 5400 (d) 4500

258. In how ways can a family consist of 3 children have different birthday in a leap year
(a) $366 \times 365 \times 364$ (b) $^{366}C_6$
(c) $^{365}c_3$ (d) $^{366}c_3 - 3$

259. If $^{15}C_{3r} = {}^{15}C_{r+3}$ then r =
(a) 2 (b) 3 (c) 4 (d) 5

260. If 6 times the no. of permutations of n items taken 3 at a times is equal to 7 times the no. of permutations of (n – 1) items taken 3 at a time then the value of n will be
(a) 7 (b) 9 (c) 13 (d) 21

261. If $^{1000}C_{98} = {}^{999}C_{97} + {}^{x}C_{901}$ then the value of x will be
(a) 999 (b) 998 (c) 997 (d) None

262. $^{6}P_{r} = 360$ then find r
(a) 4 (b) 5 (c) 6 (d) None

263. If 5 books of English 4 books of Tamil and 3 books of Hindi are to be arranged in a single row so single row so that books of same language come together.
(a) 1,80,630 (b) 1,60,830
(c) 1,03,680 (d) 1,30,680

264. 5 boys and 4 girls are to be seated in row. If the girls occupy even places then the no. of such arrangements.
(a) 288 (b) 2808 (c) 2008 (d) 2880

265. A person has 10 friends of which 6 of them are relatives. He wishes to invite 5 persons so that 3 of them are relations. In how many ways he can invites ?
(a) 450 (b) 600 (c) 120 (d) 810

266. A student has 3 books on computer, 3 books on economics, 5 on commerce. If these books are to be arranged subject wise then these can be placed on a shelf in the _ _ number, of ways.
(a) 25,290 (b) 25,920 (c) 4,230 (d) 4,320

267. The number of 4 digit numbers that can be formed from seven digits 1, 2, 3, 5, 7, 8, 9 such that no digit being repeated in any number, which are greater than 3000 are
(a) 120 (b) 480 (c) 600 (d) 840

268. A questions paper consist 10 questions, 6 in math and 4 in stats. Find out number of ways to solve question paper if at least one question is to be attempted from each section.
(a) 1024 (b) 950 (c) 945 (d) 1022

269. There are 6 gents and 4 ladies. A committee of 5 is to be formed if it include at least two ladies.
(a) 64 (b) 162 (c) 102 (d) 186

270. ${}^{n}P_{r} = 720$ and ${}^{n}C_{r} = 120$, find r ?
(a) 6 (b) 4 (c) 3 (d) 2

271. There are 10 students in a class, including 3 girls. The number of ways arrange them in a row, when any two girls out of them never come together.
(a) $8_{p3} \times 7!$ (b) $3_{p3} \times 7!$ (c) $8_{p3} \times 10!$ (d) None

272. In how many ways can a selection of 6 out of 4 teachers and 8 students be done so as to include atleast two teachers ?
(a) 220 (b) 672 (c) 896 (d) 968

273. The maximum number of points of intersection of 10 circles will be
(a) 2 (b) 20 (c) 90 (d) 180

274. How many numbers between 1000 and 10,000 can be formed with the digits 1, 2, 3, 4, 5, 6
(a) 720 (b) 360 (c) 120 (d) 60

275. If ${}^{n+1}C_{r+1} : {}^{n}C_{r} : {}^{n-1}C_{r-1} = 8 : 3 : 1$; then find the value of n.
(a) 14 (b) 15 (c) 16 (d) 17

276. In how many ways 4 members can occupy 9 vacant seats in a row
(a) 3204 (b) 3024 (c) 4^{9} (d) 9^{4}

277. The number of arrangements that can be formed from the letters of the word "ALLAHABAD"
(a) 7560 (b) 3780 (c) 30240 (d) 15320

278. If ${}^{10}C_3 + 2.\ {}^{10}C_4 + {}^{10}C_5 = {}^{n}C_5$ then the value of n = _____
(a) 10 (b) 11 (c) 12 (d) 13

279. The number of parallelograms that can be formed by a set of 6 parallel lines interested by the another set of 4 parallel lines is _____
(a) 360 (b) 90 (c) 180 (d) 45

280. If ${}^{n}P_{13} : {}^{(n+1)}P_{12} = 3 : 4$ then 'n' is _____ :
(a) 13 (b) 15 (c) 18 (d) 31

281. In how many ways that 3 commerce books, 3 computer books and 5 economics books be arranged along a row. So that books of same subjects are come together is _____
(a) 29,950 (b) 25,940 (c) 25,920 (d) None of these

282. If ${}^{12}C_3 + 2.\ {}^{12}C_4 + {}^{12}C_5 = {}^{14}C_x$, The value of x
(a) 3 or 5 (b) 5 or 9 (c) 7 or 1 (d) 9 or 12

283. The number of ways in which a man can invite one or more of his 7 friends to dinner is
(a) 64 (b) 128 (c) 127 (d) 63

284. The number of words from the letters of the word BHARAT, in which B and H will never come together, is
(a) 120 (b) 360 (c) 240 (d) None

285. The value of N in $\frac{1}{7!} + \frac{1}{8!} = \frac{N}{9!}$ is
(a) 81 (b) 64 (c) 78 (d) 89

286. If ${}^{n}P_r = 720$ and ${}^{n}C_r = 120$ then r is
(a) 4 (b) 5 (c) 3 (d) 6

287. A bag contains 4 red, 3 black and 2 white balls. In how many ways 3 balls can be drawn from this bag so that they include at least one black ball ?
(a) 46 (b) 64 (c) 86 (d) None

288. If $11_{c8} = 11_{c2x-4}$ and $x \neq 4$ than the value of 7_{cx} =
(a) 20 (b) 21 (c) 22 (d) 23

289. Which of the following is a correct statement
(a) ${}^{n}P_{n} = {}^{n}P_{n-1}$ (b) ${}^{n}P_{n} = {}^{2n}P_{n-2}$
(c) $P_{n} = {}^{3n}P_{n-3}$ (d) ${}^{n}P_{n} = {}^{n(n+1)}P_{n-1}$

290. If these are 40 guests in a party. If each guest takes a shake hand with all the remaining guests. Then the total number of hands shake is _____
(a) 780 (b) 840 (c) 1,560 (d) 1,600

291. In how many ways that the crew of an eight oared be arranged so that if 3 of crew can row only on a stoke side and 2 row on the other side is _____
(a) 1728 (b) 256 (c) 164 (d) 126

292. How many numbers divisible by 5 of 6 digit can be made from the digit 2, 3, 4, 5, 6, 7
(a) 120 (b) 600 (c) 240 (d) None

293. 5 boys and 3 girls are to be seated together such that no two girls are together
(a) 14,400 (b) 2400 (c) 720 (d) none of these

294. Out of 6 boys & 4 girls, find the number of ways for selecting 5 members committee in which there is exactly two girls ?
(a) 120 (b) 1440 (c) 720 (d) 71

295. If ${}^{n}P_{5} : {}^{n}P_{3}$ is 2 : 1 than value of n is
(a) 2 (b) – 5 (c) – 2 (d) 5

296. If ${}^{n}p_4 = 20{}^{n}p_2$ where P denotes the number of permutations n = …….
(a) 4 (b) 2 (c) 5 (d) 7

297. A fruit basket contains 7 apples, 6 bananas and 4 mangoes. How many selections of 3 fruits can be made so that all 3 are apples ?
(a) 120 ways (b) 35 ways (c) 168 ways (d) 70 ways

298. Out of 7 boys and 4 girls a team of a debate club of 5 is to be chosen. The number of terms such that each team includes at least one girls is ……
(a) 429 (b) 439 (c) 419 (d) 441

299. From a group of 8 men 4 women, 4 persons are to be selected to form a committee so that at least 2 women are there on the committee. In how many ways can it be done ?
(a) 201 (b) 168 (c) 202 (d) 220

300. Eight chairs are numbered from 1 to 8. Two women and there men are to be seated by allowing one chair for each. First, the women choose the chairs from the chairs numbered 1 to 4 and then men select the chairs from the remaining. The number of possible arrangement ?
(a) 120 (b) 288 (c) 32 (d) 1440

301. 'n' locks and 'n' corresponding keys are available but the actual combination is not known. The maximum number of trails that are needed to assigns the keys to the corresponding locks is
(a) $(n-1)C_2$ (b) $(n+1)C_2$
(c) $\sum_{k=2}^{n} k$ (d) $\sum_{k=2}^{n}(k-1)$

302. There are ten flights operating between city A and city B. the number of ways in which a person can travel from city A to city B and return by different flight is
(a) 90 (b) 95 (c) 8C (d) 78

303. How many odd numbers of four digit can be formed with digit 0, 1, 2, 3, 4, 7 and 8 ?
(a) 150 (b) 300 (c) 120 (d) 210

304. In how many different ways can the letters of the word 'DETAIL' be arranged a way that the vowels occupy only the odd numbered positions
(a) 32 (b) 36 (c) 48 (d) 60

305. ${}^{n}C_{p} + 2\,{}^{n}C_{p-1} + {}^{n}C_{p-2}$?
(a) ${}^{n+}C_{p}$ (b) ${}^{n+2}C_{p}$ (c) ${}^{n+1}C_{p+1}$ (d) ${}^{n+2}C_{p-1}$

306. A business houses wishes to simultaneously elevate two of its six branch heads. In how many ways these elevation can take place ?
(a) 12 (b) 3 (c) 6 (d) 15

307. If ${}^{n}P_{6} = 20\,{}^{n}P_{4}$ then the value of n is given by
(a) n = 5 (b) n = 3 (c) n = 9 (d) n = 8

308. How many numbers of seven digit numbers which can be formed from the digits 3, 4, 5, 6, 7, 8, 9 no digits being repeated are not divisible by 5?
(a) 4320 (b) 4690 (c) 3900 (d) 3890

309. A person can go from place 'A' to 'B' by 11 different modes of transport but is allowed to return back to "A" by any mode other than the one earlier. The number of different ways, the entire journey can be complete is
(a) 110 (b) 10^{10} (c) 9^{5} (d) 10^{9}

310. The number of ways 5 boys and 5 girls can be seated at a round table, so no two boys are adjacent is
(a) 2550 (b) 2880 (c) 625 (d) 2476