Nishant Jindal

1.

20

2   2   2   . . .   2

no. of ways to divide into 10 equal groups $\dfrac{20!}{(2!)^{10}\,10!}$

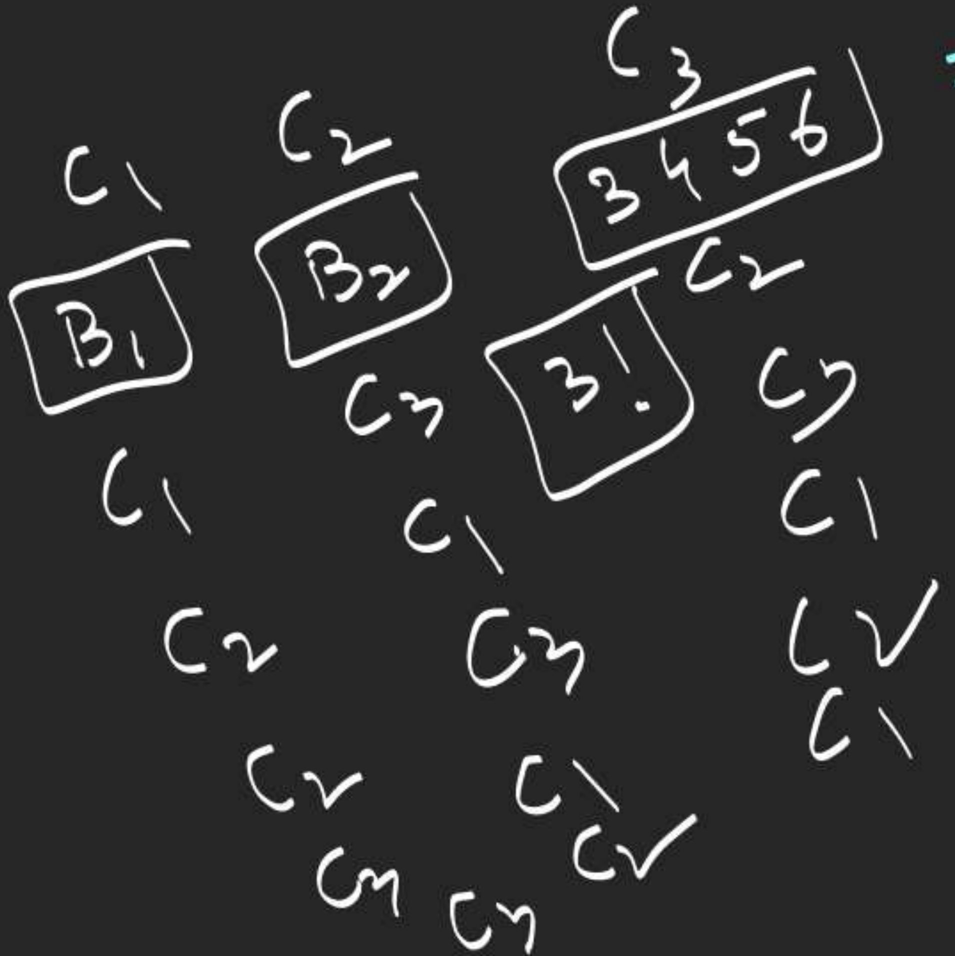
No. of ways to distribute $= \dfrac{20!}{(2!)^{10}\,10!} \times 10!$

Nishant Jindal

2.

1 1 4, 1 2 3, 2 2 2

$$\frac{6!}{(1!)^2\, 4! \times 2!} \times 3! + \frac{6!}{1!\,2!\,3!} \times 3! + \frac{6!}{(2!)^3\, 3!} \times 3!$$



$= 3^6 - n(A \cup B \cup C)$ $\quad n(A \cap B) = 1^6$

$= 3^6 - \left(3 \times 2^6 - {}^3C_2\, 1^6\right)$

A = C_1 got no book

B = C_2 —"—

C = C_3 —"—

Nishant Jindal

$\cancel{{}^6C_3 \; 3! \times 3^3}$

C_1: B_4, B_1, B_5, B_6

C_2: B_2

C_3: B_3

C_3: B_3

C_1: B_1, B_4, B_5, B_6

C_2: B_2

Nishant Jindal

3.

8

3 3 2

Convassed.

① $\dfrac{8!}{3!\,3!\,2! \times 2!} \times 3!$

② $\left(\dfrac{8!}{3!\,3!\,2!\,2!} \times 3!\right) 3! \times 3! \times (3 \times 2)$

8 passangers

9 seats

${}^{9}P_{8}$

Nishant Jindal

4.

$$\frac{45!}{20!\,15!\,10!} \times 1$$

Nishant Jindal

5: There are 6 men available for a game in which every pair has to play with other pair. Find no. of games that can be played.

$\boxed{P_1 P_2}$ $\boxed{P_3 P_4}$ $\boxed{P_5 P_6}$

$$\frac{6!}{(2!)^3\, 3!} \times 3$$

$$^6C_4 \times 3$$

$P_1 \; P_2 \; P_3 \; P_4$

$P_1 P_4$

$P_1 P_2$

$P_1 P_3$

Nishant Jindal

Q: In how many ways 13 cards to each of the four players be distributed from a pack of 52 cards so that each may have

(i) A/K/Q/J of same suit

AKQJ of same suit to every player

$$4!\left(\frac{36!}{(9!)^4\,4!}\times 4!\right)$$

remaining cards.

(ii) —"— any suit

AAAA

$$(4!)^4 \times\left(\frac{36!}{(9!)^4\,4!}\times 4!\right)$$

DPP-2

SC → $\boxed{46-60}$

Nishant Jindal

Suits

Red	Red	Black	Black
♦	♥	♠	♣

2
3
4
5
.
9
10

J	J	J	J
Q	Q	Q	Q
K	K	K	K
A	A	A	A

$\left.\right\}$ 13 denominations

J Q K A → honour cards.

J Q K → face cards.