

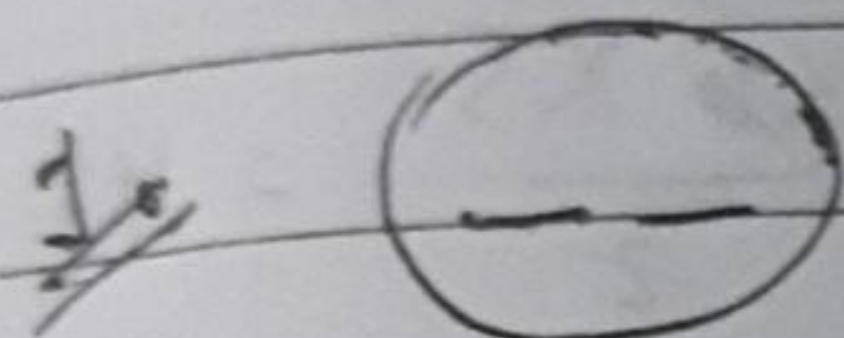
JULY 2023						
S	30	2	9	16	23	
M	31	3	10	17	24	
T		4	11	18	25	
W		5	12	19	26	
T		6	13	20	27	
F		7	14	21	28	
S	1	8	15	22	29	



June 2023

PERMUTATION AND COMBINATION

Saturday **10**
Day (161-204)



1 2 3

\therefore No. of ways $= (n-1)! = 23!$

$\Rightarrow 23! \times 2!$ (Ans)

2. BG BG BG BG B

$5! \times 4!$

3. LEADER

Sunday 11

~~$6 \times 5 \times 4 \times 3 \times 2 \times 1 = 720$~~

$\frac{6 \times 5 \times 4 \times 3 \times 2 \times 1}{2!} = \frac{720}{2} = 360$ (Ans)

June 2023



JUNE 2023						
1	4	11	18	25		
2	5	12	19	26		
3	6	13	20	27		
4	7	14	21	28		
5	8	15	22	29		
6	9	16	23	30		
7	10	17	24			

12 Monday
Day (163-202)

~~4~~ 2W, 3B, 4R.

$$\text{At least 1 Black} = {}^3C_1 \times {}^6C_2 = 3 \times \frac{6 \times 5}{2} = 45$$

$$2 \text{ Black} = {}^3C_2 \times {}^6C_1 = 3 \times 6 = 18$$

$$3 \text{ Black} = {}^3C_3 = 1$$

$$\therefore \text{Total} = 45 + 18 + 1 = 64 (\text{Ans})$$

5 2, 3, 0, 4, 3, 3, 3

6 5 4 3 2 1

$$\frac{6!}{4! \times 2!} = \frac{6 \times 5 \times 4 \times 3 \times 2 \times 1}{4 \times 3 \times 2 \times 1 \times 2} = 15$$

$$\therefore \text{Total ways} = \frac{6!}{4! \times 2!} = 15$$

$$6 \text{ digit no.} = \frac{1 \times 6!}{4!} = 30$$

$$7 \text{ digit no.} = \frac{6!}{4!} = \frac{180}{24} = 180$$

$$\frac{7!}{4!} = 210$$

$$\therefore \text{No. greater than million} = 180$$

JULY 2023						
1	8	15	22	29		
2	9	16	23	30		
3	10	17	24			
4	11	18	25			
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7	14	21	28			
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June 2023

6 6N, 7I, 4P

$$\begin{aligned} \text{Total} &= {}^6C_1 \times {}^7C_1 \times {}^4C_1 \\ &= 6 \times 7 \times 4 \\ &= 168 (\text{Ans}) \end{aligned}$$

Tuesday 13
Day (164-203)

7 SCISSORS

$$\frac{8!}{4!} = 8 \times 7 \times 6 \times 5$$

$$= 1680 (\text{Ans})$$

~~8~~ 1 → 5
2 → 4

$$\Rightarrow {}^5P_4 \cdot {}^4P_4 + {}^5P_5 \cdot {}^4P_3$$

$$= 5! \cdot 4! + 5! \cdot \frac{4!}{1!}$$

$$= 120(24) + 120(24)$$

$$= 8$$

June 2023



JUNE 2023						
	4	11	18	25		
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TUE	6	13	20	27		
WED	7	14	21	28		
THU	8	15	22	29		
FRI	9	16	23	30		
SAT	10	17	24			

14 Wednesday
Day (165-200)

8. 8 person $\begin{matrix} \swarrow 5,3 \\ \searrow 4,4 \end{matrix}$

$$\text{Total ways} = \frac{8!}{5!3!} + \frac{8!}{4!4!}$$

$$= \frac{8 \times 7 \times 6}{3 \times 2} + \frac{8 \times 7 \times 6 \times 5}{4 \times 3 \times 2}$$

$$= 56 + 70 = 126 \text{ (Ans)}$$

9. $\begin{matrix} 10 \\ 10 \end{matrix} \left\{ \begin{matrix} L - 5 \\ L - 5 \\ L - 5 \\ L - 5 \end{matrix} \right.$ $\square \square \square \square \square$

Total no. of ways = 5^{10} (Ans)

10. Selecting 7 people of 15 people = ${}^{15}C_7$
 \therefore 7 people arranged in circular table in $(7-1)! = 6!$
 Remaining 8 in $7!$ ways

June 2023



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$\therefore \text{Total} = {}^{15}C_7 \cdot 6! \cdot 7!$ (Ans)

Thursday 15
Day (166-199)

11. EDUCATION
Consonants = DCIN

\therefore Total no. of ways = $4!5!$

12. 20 persons $\begin{matrix} \swarrow 2 \text{ brothers} \\ \searrow 18 \end{matrix}$

Fix 2 brothers, $\boxed{B_1} \quad \boxed{B_2}$

\therefore Rest 18 arranged in $18!$

2 these 2 can be arranged ..

$\therefore \text{Total} = 18! \times 2$ (Ans)

13. 6 person $\begin{matrix} 1P & 2VP \\ 2 & \text{all} \end{matrix}$

Total no. of ways = ${}^2C_1 \times {}^5C_2 = \frac{2 \times 5 \times 4}{2} = 20$ (Ans)

June 2023



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16 Friday

Day (167-198)

14

f_1

f_2

f_3

f_4

f_5

∴ Total no. of ways = $5P_5$

$$= 5! = 120 \text{ (Ans)}$$

15. 12 Bulb

B

2 (ON, OFF)

B

2

⋮

B

∴ Total ways = 2^{12}

But in one case all 12 bulbs will be off.

$$\Rightarrow \text{Total no. of ways} = 2^{12} - 1 \text{ (Ans)}$$