

# WALMIKI GAYAKI

1. committee of 5 men + 6 women from 8 men + 10 women

$${}^8C_5 \times {}^{10}C_6 = \frac{8 \times 7 \times 6 \times 5 \times 4}{5 \times 4 \times 3 \times 2 \times 1} \times \frac{10 \times 9 \times 8 \times 7 \times 6 \times 5}{6 \times 5 \times 4 \times 3 \times 2 \times 1}$$

$$= 56 \times 210 \Rightarrow 11760$$

2. 3 men - 2 women =  ${}^7C_3 \times {}^6C_2 \Rightarrow \frac{7 \times 6 \times 5}{3 \times 2 \times 1} \times \frac{6 \times 5}{2 \times 1} \Rightarrow 35 \times 15 \Rightarrow 525$   
 4 men, 1 woman =  ${}^7C_4 \times {}^6C_1 \Rightarrow \frac{7 \times 6 \times 5 \times 4}{4 \times 3 \times 2 \times 1} \times 6 \Rightarrow 35 \times 6 \Rightarrow 210$   
 5 men, 0 women =  ${}^7C_5 \Rightarrow \frac{7 \times 6 \times 5 \times 4 \times 3}{5 \times 4 \times 3 \times 2 \times 1} \Rightarrow 21$   
 $\Rightarrow 525 + 210 + 21 = 756$

3. D E T A Z L  $\rightarrow$  6 letters

odd positioning  $\rightarrow$  3 positions  $\Rightarrow E, A, I \rightarrow$  3 vowels

no. of ways to arrange vowels in odd position =  $3! \Rightarrow 6$

no. of ways to arrange in remaining 3 position =  $3! = 6$

$$\Rightarrow 6 \times 6 \Rightarrow 36$$

4. 6 men chosen in  ${}^8C_6$  ways and 4 women be chosen in  ${}^{10}C_4$  ways

$$\Rightarrow {}^8C_6 \times {}^{10}C_4$$

$$= \frac{8 \times 7 \times 6 \times 5 \times 4 \times 3}{6 \times 5 \times 4 \times 3 \times 2 \times 1} \times \frac{10 \times 9 \times 8 \times 7}{4 \times 3 \times 2 \times 1}$$

$$\Rightarrow 5880 \text{ ways}$$

5. cost of brown = x  
 cost of black = 3x  
 no. of black = 5  
 no. of brown = 6

$$\Rightarrow 5 \times 3x + 6 \times x \Rightarrow 15x + 6x$$



$$\Rightarrow 36x + 5x = 2(13x + 6x)$$

$$\Rightarrow 36x + 5x \Rightarrow 30x + 26x$$

$$6x = 25x$$

$$\boxed{b = 25}$$

Sum :- 1

Let total people = n

Let total handshakes = 24

$$\text{total ways - hand shakes} \Rightarrow \frac{n(n-1)}{2} \Rightarrow 24$$

$$= 4$$

ie.

8. 5 tasks, 5 persons

$T_1 \neq P_1$  or  $P_2 \rightarrow$  can go to  $P_3, P_4, P_5 \rightarrow 3$  persons

$T_2 =$  only  $P_3$  or  $P_4 \rightarrow 2$  options

3 tasks to remaining 3 people  $\rightarrow 3! = 6$

$$(3 \times 2 - 1) \times 6 = (6 - 1) \times 6 = 5 \times 6 = 30$$

9. maths matics

letters = 11

Vowels = a, e, a, i  
↓  
4 Vowels

$$\Rightarrow \frac{8!}{2! \times 2! \times 2!} \Rightarrow \frac{8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2}{2 \times 2 \times 2} \Rightarrow 11080$$

$$\Rightarrow \text{vowels} \Rightarrow \frac{4!}{2!} \Rightarrow 4 \times 3 \Rightarrow 12 \rightarrow 11080 \times 12$$

$$\Rightarrow 120960$$

Vowels  $\rightarrow$  O, I, A

5. OPTICA 2

5 units

$$\Rightarrow 5! = 120$$

$$3! = 6$$

$$\Rightarrow 120 \times 6$$

$$\Rightarrow 720$$



$$11. \frac{n(n-1)}{2} \Rightarrow \frac{30 \times 29}{2} = 435$$

30 people

$$12. \text{LOGARITHMS} \Rightarrow 10C_4 = \frac{10 \times 9 \times 8 \times 7}{4 \times 3 \times 2 \times 1} \Rightarrow 210$$

$$\Rightarrow 4! = 24 \Rightarrow 210 \times 24 = 5040$$

14. 3 girls, 2 boys

choose:

2 boys from 4  
2 girls from 5

$$2A + 2W \Rightarrow {}^4C_2 \Rightarrow 6$$

$$3A_1 + 2W \Rightarrow {}^5C_2 \Rightarrow 10$$

$$\Rightarrow 6 \times 10 = 60$$

$$2C_1 \times 3C_1 \Rightarrow 2 \times 3 \Rightarrow 6 \quad \Rightarrow 6 \times 6 \Rightarrow 36$$

$$3C_1 \times 2C_1 \Rightarrow 3 \times 2 \Rightarrow 6$$