

①

4 → orange	} (n+1) ways ⇒	5
3 → mango		4
2 → Apple		3

Total ways ⇒  $5 \times 4 \times 3 = 20 \times 3 = 60$

one & more than one ⇒  $60 - 1 = \underline{59}$  ways.

Answer (B) 59

② let first two places, 1, 5,

then remaining 4 place, let A, B, C, D

let  $D = 6$ , then, remaining 3 places, one place will be 6 so,

$$\Rightarrow {}^3C_1 \times 9 \times 9 = \underline{243} \text{ --- (1)}$$

When,  $D = 0/2/4/8$  so 4 choices, out of 3 places, 2 places will be by 6. so,

$${}^3C_2 \times 9 \times 8 = 108 \text{ --- (2)}$$

Now, If, first two digit is 2, 6,

let  $D = 6$ , so, remaining  $9 \times 9 \times 9 = \underline{729}$  --- (3)

When,  $D = 0/2/4/8$ , then, one place should be,

$$4 \times 3C_1 \times 9^2 = 972$$

$$\text{Total ways} = 243 + 100 + 729 + 972$$

$$= 2052 \text{ Answer}$$

③

given that

$$m \times f = 24$$

Possibility of hand shakes, in not same order  $\rightarrow$

$$(2, 12), (3, 8), (4, 6), (1, 24)$$

$$\text{Taking} \rightarrow (2, 12) \rightarrow 2C_2 + 12C_2 = 67 \quad (\text{X})$$

$$\text{Taking} \rightarrow (3, 8) = 3C_2 + 8C_2 = 31 \quad (\text{X})$$

$$\text{Taking} \rightarrow (4, 6) \rightarrow 4C_2 + 6C_2 = 21 \quad \checkmark \text{ Answer}$$

Hence, 21 possible hugs are there according to the given data.

④

MATHEMATICS

$\rightarrow$  Consonants  $- 7$

Vowels  $\rightarrow 4$

$$\begin{array}{r} \textcircled{4} + 7 \\ \downarrow \\ \textcircled{A A E I} \\ \downarrow \\ 4! \\ \hline 2! \end{array} = \frac{8!}{2!2!}$$

$$T \rightarrow 2$$

$$M \rightarrow 2$$

$$A \rightarrow 2$$

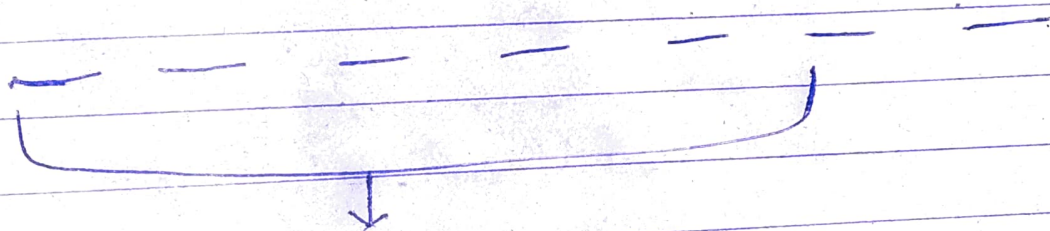


Required  $\rightarrow \frac{4!}{2!} \times \frac{8!}{2!2!}$

$$4 \times 3 \left\{ \frac{4 \times 7 \times 6 \times 5 \times 4 \times 3}{2} \right\}$$

$= 120960$  Answer

⑤



Total  $\rightarrow 7$

⑧ remaining =  $\text{Total} - \text{young} = \frac{7-1=6}{}$

$6 \times 5 \times 4 \times 3 \times 2 \times 1 \times \textcircled{6} \rightarrow$  last position

$= 720 \times 6 = 4320$  Answer