(1)

4 → orange
3 → Mango
2 → Apple

→ (n+1) ways ⇒ 5, 4, 3

Total ways ⇒ 5 × 4 × 3 = 20 × 3 = 60

one & more than one ⇒ 60 − 1 = (59) ways.

Answer (B) 59

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(2)

Let first two places. 1, 5,

then remaing 4 place, ut A, B, C, D

Let D = 6, then, remaining 3 places. one place will 6 so, $3C_1$ & two will be 9,

⇒ $3C_1 \times 9 \times 9 = 243$ — (1)

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

$3C_2 \times 9 \times 8 = 108$ — (2)

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

Let D = 6, so, remaing $9 \times 9 \times 9 = 729$ — (3)

When, D = 0/2/4/8, then, one places should be, 6

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

Total ways = 243 + 108 + 729 + 972

= 2052 Answer

(3)

given that

$m \times f = 24$

Possibility of hand shakes, in not same order →

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

Taking → (2,12) → ${}^{2}C_2 + {}^{12}C_2 = 67$ (X)

Taking → (3,8) = ${}^{3}C_2 + {}^{8}C_2 = 31$ (X)

Taking → (4,6) → ${}^{4}C_2 + {}^{6}C_2 = 21$ ✓ Answer

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

(4) MATHEMATICS → Consonants – 7

Vowels → 4

T → 2

M → 2

A → 2

4 + 7

$= \frac{8!}{2!2!}$

AAEI

$\frac{4!}{2!}$

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

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

$= 120960$ Answer

(9)

_ _ _ _ _ _ _

↓

Total → 7,

remaining = Total − young = 7 − 1 = 6,

$6 \times 5 \times 4 \times 3 \times 2 \times 1 \times (6)$ → last position

$= 720 \times 6 = 4320$ Answer