

پاسخنامه تشریحی تکلیف شماره ۲۰ آفرین!

$$\boxed{6!} = 720 \quad (1)$$

$$(6-1)! = \boxed{5!} = 120 \quad (2)$$

$$\frac{(6-1)!}{2} = \frac{\boxed{5!}}{2} = 60 \quad (3)$$

$$\binom{6}{6} \times 6! = \frac{6!}{6! \times 0!} \times 6! = \frac{6!}{6!} = 6 \times 5 \times 4 \times 3 = 360 \quad (4)$$

$$\binom{6}{5} \times 5! = \frac{6 \times 5}{5} \times 5 \times 4 \times 3 = 6 \times 5 \times 3 = 90 \quad (5)$$

$$\binom{6}{4} \times \frac{4!}{2} = \frac{6 \times 5}{2} \times \frac{4 \times 3 \times 2}{2} = 45 \quad (6)$$

$$\binom{6}{3} \times 3! = \frac{6!}{3!} \times 3! = 6! \times 1 = 720 \quad (7)$$

$a \text{ (d) } b e f \quad 5! = 120 \quad (8)$

$a \text{ (d) } b e f \quad 5! \times 2! = 5 \times 4 \times 3 \times 2 = 120 \quad (9)$

$a b c d e f \quad \frac{6!}{2!} = 6 \times 5 \times 4 \times 3 = 360 \quad (10)$

a (e d c) b f      6! 3! ✓ = 126      (1) (11)

a c d e b f       $\frac{6!}{3!} \checkmark = 9 \times 2 \times 1 = 18$       (1) (12)

e c d a b f       $\frac{6!}{2!} \checkmark = 9 \times 2 \times 1 = 18$       (1) (13)

c e d a b f       $\frac{6!}{2! 2!} \checkmark = 9 \times 2 \times 2 \times 1 = 18$       (1) (14)

(•••••) o o o o o      6! 5! ✓ = 1260      (1) (15)

(•••••) (o o o o o)      5! 5! 2! ✓ = 2400      (1) (16)

o o o o o o  
 $\binom{6}{2} \times 5! \times 5! = \frac{6!}{2!} \times 5! \times 5! = 6! 5! \checkmark = 1260$       (1) (17)

10! - 6! 5! -  $\binom{6}{2} \times 5! \times 5!$        $10! - 2(6! 5!)$  ✓  
 $10! - 6! 5! - \frac{6!}{2!} \times 5! \times 5!$       (18) (1)

10!      (•••••) o o o o o      6! 5!  
 o o o o o o o o o o

o o o o o o o o o o  
 $5! \times 5! \times 2! = 2400 \checkmark$       (1) (19)

(o o o o o) (o o o o o)       $(6-1)! \times 6! = 5! 6! \checkmark = 2400$       (1) (20)