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1 a) $n = 7$

$\Rightarrow 7! = 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1$

$= 5040$

b) $n = 7$

$P(7,3) = \frac{7!}{(7-3)!} = \frac{7!}{4!} = \frac{7 \times 6 \times 5 \times 4!}{4!} = 210$

2 $K = 1$, $U = 1$, $R = 4$, $I = 1$

a) $P = \frac{7!}{4!} = \frac{7 \times 6 \times 5 \times 4!}{4!} = 210$

b.) P huruf selain R = 3! = 6

Jadi, R ada 4 => 4 × 6 = 24 permutasi

c.) x x x x x x x (R R above the last two x)

5 4 3 2 1 2 1

$\Rightarrow \frac{5!}{2!} = 5 \times 4 \times 3 = 60$

3 nasi = 3 minuman = 5

ikan = 4 n = 4

kerupuk = 2

=> 3 × 4 × 2 × 5 = 80 cara susun

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4 a.) $n = 6$

$= \frac{6!}{2!} = 6 \times 5 \times 4 \times 3 = 360$ permutasi

b.) M

$x \quad x \quad x \quad x \quad x \quad x \Rightarrow 5! = 120$ permutasi

$5 \quad 4 \quad 3 \quad 2 \quad 1$

5 a) Banyak susunan

$P(6,6) = \frac{6!}{(6-6)!} = 720$ susunan

b) $\underbrace{(x \quad x \quad x)}_{4} \; x \; x \; x \qquad n = 6$

$\Rightarrow 4! \cdot 6! = 144$ susunan

6 $\underbrace{x \quad x \quad x}_{1 \; 2 \; 3} \quad \underbrace{x \quad x \quad x}_{4 \; 5 \; 6} \quad \underbrace{x \quad x \quad x}_{1 \; 2 \; 3}$

$C_6^9 = \frac{9!}{6!(9-6)!} = \frac{9 \times 8 \times 7 \times 6!}{6! \times 3!} = \frac{504}{6}$

$= 84$

$C_3^9 = \frac{9!}{3!(9-3)!} = \frac{9 \times 8 \times 7 \times 6!}{3! \times 6!} = 84$

banyak susunan $= 84 + 84 = 168$

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7 $5! \cdot 4! = 120 \cdot 24$

$= 2880$

8 $\frac{6!}{(6-6)!} = 720$ cara

banyak pemain = 6

yang bermain = 6

10 $M_1 = 2$, $M_2 = 4$, $M_3 = 5$, $n = 9$

$C_2^9 = \frac{9!}{2!(9-2)!} = 36$

$C_4^9 = \frac{9!}{4!5!} = 126$

$C_5^9 = \frac{9!}{5!4!} = 126$

$36 + 126 + 126$

$\Rightarrow 288$

9 $P(40,4)$

$\Rightarrow \frac{40!}{(40-4)!} = \frac{40!}{36!} = 2.193.360$ cara

11 pelamar = 8

calon = 3

$C_3^8 = \frac{8!}{3!5!} = \frac{8 \times 7 \times 6 \times 5!}{3! \times 5!} = 56$

13 Panitia = 4
Orang = 12

$$C_4^{12} = \frac{12!}{9!\,8!} = \frac{12\times11\times10\times9\times\cancel{8!}}{4!\times\cancel{8!}} = \frac{11880}{24}$$

$$= 495 \text{ cara}$$

14 Mainan = 15
Siswa = 5

$$C_5^{15} = \frac{15!}{5!(15-5)!} = \frac{15\times14\times13\times12\times11\times\cancel{10!}}{5!\times\cancel{10!}}$$

$$= 3003 \text{ cara}$$

15 $C_1^3 = \frac{3!}{2!} = \frac{6}{2} = 3$ cara

16 Warna = 4
Digunakan = 2

$$C_2^4 = \frac{4!}{2!(4-2)!} = \frac{4\times3\times\cancel{2!}}{2!\times\cancel{2!}} = 6 \text{ kombinasi}$$

17 $(a+b)^6 = a^6 + 6a^5b + 15a^4b^2 + 20a^3b^3 + 15a^2b^4 + 6ab^5 + b^6$

18 a) $(x+y)^3 = x^3 + \frac{3}{1!}a^2b + \frac{3-2}{2!}ab^2 + b^3$

$= x^3 + 3a^2b + 3ab^2 + b^3$

a) $(x+y)^3 = x^3 + \frac{3}{1!}x^2y + \frac{3-2}{2!}xy^2 + y^3$

$= x^3 + 3x^2y + 3xy^2 + y^3$

b) $(3x-2y)^4$

$= (3x)^4 - \frac{4}{1!}(3x)^3(2y) + 6(3x)^2(2y)^2 - 4(3x)(2y)^3 + (2y)^4$

$= 81x^4 - 216x^3y + 216x^2y^2 + 216xy^3 + 81y^4$

19 $\frac{448}{9} \times^{10} y^8$

20 $C_3^{32} = \frac{32!}{3!(32-3)!} = \frac{32 \times 31 \times 30 \times 29!}{3! \times 29!}$

$= 4960$ cara