

01 →

$$T = 5 + 4 + 6 + 3 = 18$$

$$p(A) = \frac{5+6}{18} = \frac{11}{18}$$

$$p(\bar{A}) = 1 - \frac{11}{18} = \frac{18-11}{18} = \frac{7}{18}$$

$$p(B) = \frac{4+3}{18} = \frac{7}{18}$$

$$p(C) = \frac{9}{18}$$

$$p(\bar{C}) = 1 - \frac{9}{18} = \frac{18-9}{18} = \frac{9}{18}$$

$$p(D) = \frac{9}{18}$$

$$p(B \cup D) = p(B) + p(D) = \frac{7}{18} + \frac{9}{18} = \frac{16}{18} = \frac{8}{9}$$

$$\frac{8}{9}$$

$$p(\bar{A} \cap \bar{C}) = p(\bar{A}) \cdot p(\bar{C}) = \frac{7}{18} \cdot \frac{9}{18} = \frac{7 \cdot 1}{2 \cdot 36} = \frac{7}{72}$$

$$\frac{7}{36}$$

02 →

$$C_{5,27} = \frac{27!}{5!(27-5)!} = \frac{27!}{5!22!} = \frac{27 \cdot 26 \cdot 25 \cdot 24 \cdot 23 \cdot \cancel{22!}}{5! \cdot \cancel{22!}} = \frac{\overset{0}{\cancel{27}} \cdot \overset{13}{\cancel{26}} \cdot \overset{5}{\cancel{25}} \cdot \overset{6}{\cancel{24}} \cdot 23}{\cancel{5} \cdot \cancel{4} \cdot \cancel{3} \cdot \cancel{2}} = 80730$$

$$C_{3,15} = \frac{15!}{3!(15-3)!} = \frac{15!}{3!12!} = \frac{15 \cdot 14 \cdot 13 \cdot \cancel{12!}}{3! \cdot \cancel{12!}} = \frac{\overset{5}{\cancel{15}} \cdot \overset{7}{\cancel{14}} \cdot 13}{\cancel{3} \cdot \cancel{2}} = 455$$

$$C_{2,12} = \frac{12!}{2!(12-2)!} = \frac{12!}{2!10!} = \frac{12 \cdot 11 \cdot \cancel{10!}}{2! \cdot \cancel{10!}} = 66$$

$$P(4) = \frac{66 \cdot 455}{24752} = \frac{30030}{80730} \approx 37,20\%$$

03 →

$$C_{4,52} = \frac{52!}{4!(52-4)!} = \frac{52!}{4!48!} = \frac{52 \cdot 51 \cdot 50 \cdot 49 \cdot \cancel{48!}}{4 \cdot \cancel{3} \cdot \cancel{2} \cdot \cancel{1} \cdot \cancel{48!}} = 270725$$

13

$$p(A) = \frac{13}{270725} = \frac{1}{20825} //$$

04 →

K_A, K_B, K_C

$$T = 2 \times 2 \times 2 \times 2 \times 2 = 32$$

$$K_A = 5$$

$$3 \cdot 2 \cdot 1 = 6$$

$$\underline{60} = 10$$

$$K_B = 4$$

$$5 \cdot 4 \cdot 3 = 60$$

$$6$$

$$K_C = 3$$

$$\frac{10}{32} = \frac{5}{16} //$$