(1) $3! = 3 \times 2 \times 1 = 6$ ways

(2) Total = 5.

Picking 1 ball = 5 choices

Ans = 5 ways

(3) CAT

T = 3, All letters are different

∴ use $3! = 3 \times 2 \times 1$

Ans = 6 ways

(4) $^4C_2$

$$\frac{4!}{2!(4-2)!} = \frac{4 \times 3 \times 2}{2 \times 1 \times 2}$$

$= 6$ ways

(5) Total outcomes = 2

Favorable = 1

probability = $\frac{1}{2}$

Ans = 0.5

(6) Die has 6 no = 1 to 6

only 1 in 4

∴ $P = \frac{1}{6}$

(7) 3 choices

Second digit : 2 choices

total = $3 \times 2 = 6$

Ans = 6 no

(8) Total = 3 + 4 = 7

Favorable = 3

probability = $\frac{3}{7}$

Ans = $\frac{3}{7}$ = 0.428

(9) 4!

= 4×3×2×1 = 24

∴ All are different

(10) Total balls = 3+2=5

green = 2

$P = \frac{2}{5}$

Ans = 0.4

(11) 3 digits from 4

= 4×3×2

= 24

Ans = 24 no

(12) $^7C_3$

$= \frac{7!}{3! \times (7-3)!} = \frac{7 \times 6 \times 5 \times 4!}{3 \times 2 \times 4!} = 35$

Ans = 35 ways

(13) King = 4

total cards = 52

$P = \frac{4}{52} = 1/13$

Ans = 1/13

(14) Ways to arrange 5 books on shelf

$5! =$

$= 5 \times 4 \times 3 \times 2 \times 1$

Ans: 120

(15) Total = 10

Black balls = 4

probability = $\frac{4}{10} = \frac{2}{5}$

Ans = $\frac{2}{5}$

(16) $4P_3$

$= 4 \times 3 \times 2$

Ans = 24.

(17) $a, 4, 1 \rightarrow 3$

total outcome = 6

$P = \frac{3}{6} =$

Ans = $\frac{1}{2}$

(18) $1 = 4$

$4C_2$

$\frac{4 \times 3}{2} = 6$

Ans = 6

(19) Heart = 13

total Card = 52

$$P = \frac{13}{52} = \frac{1}{4}$$

Ans = $\frac{1}{4}$

(20) $(4-1)!$

$3!$

$= 3 \times 2$

$= 6$ way

(21) Even = 2 & 4

Remaining 3 = $4 \times 3 \times 2 = 24$

$T = 2 \times 24$

$T = 48$ no

(22) Total = $\frac{12}{6} \times 2 = 66$

Even = $5 \times 2 = 10$

$P = \frac{10}{66} = \frac{5}{33}$

(23) • 2w, 2m = 28.45 = 1260

• 3w, 1m = 56.10 = 560

• 4w = 70

Total = 1260 + 560 + 70

= 1890

(24) $5! = 120$

Together = $4! \times 2 = 48$

Not together = $120 - 48$

$= 72$ ways

(25) Total = $6 \times 6 = 36$

$P = \frac{6}{36} = \frac{1}{6}$