Day 6

1. $3! = 6$

2. Choose 1 out of 5

$${}_5C_1 = 5$$

3. $3! = 6$

4. $${}_4C_2 = \frac{4!}{(4-2)!2!} = 6$$

5. $P(H) = \frac{1}{2}$

6. $P(4) = \frac{1}{6}$

7. $\boxed{3} \quad \boxed{2} = 3 \times 2 = 6$

8. $T = 7$

$A = 3$

$P(A) = \frac{3}{7}$

9. $4 \times 3 \times 2 \times 1 = 24$

10. $T = 5$

$G = 2 \qquad P(G) = \frac{2}{5}$

11. $${}_4P_3 = 4 \times 3 \times 2 = 24$$

12. $${}_7C_3 = \frac{7!}{(7-3)!3!} = 35 \text{ ways}$$

PAGE NO :
DATE :

13. $T = 52$
$k = 4$
$P(k) = \frac{4}{52} = \frac{1}{13}$

14. $5! = 120$

15. $T = 10$
$B = 4$
$P(B) = \frac{4}{10} = \frac{2}{5}$

16. $T = 4$
${}^4P_3 = 4 \times 3 \times 2 = 24$

17. Even on die : 2, 4, 6
$P = \frac{3}{6} = \frac{1}{2}$

18. ${}^4C_2 = \frac{4!}{2!2!} \cdot 2 \times 3 = 6$

19. $T = 52$
heard = 13
$P(\text{heard}) = \frac{13}{52} = \frac{1}{4}$

20. $(n-1)! = (4-1)!$
$= 3! = 6$

21. $\frac{}{2} \quad \frac{}{3} \quad \frac{}{4} \quad \frac{24}{2}$ $2 \times 3 \times 4 \times 2 = 48$

22. total = 12 ${}^{12}C_2 = \frac{12!}{10!\,2!} = \frac{12 \times 11 \times 10!}{2 \times 1 \times 10!} = 66$

$^5C_3 = \frac{5!}{3!2!} = \frac{5\times4}{2\times1} = 10$

$P(4) = \frac{10}{66} = \frac{5}{33}$

23. $5! = 120$

$4! = 24$

$4! \times 2 = 24 \times 2 = 48$

$120 - 48 = 72$ ways

24. Case 1: 2W, 2M

$^8C_2 \times {}^{10}C_2 = \frac{8\times7\times6!}{6!\times1} \times \frac{10\times9\times8}{8!\times2\times1}$

$= 28 \times 45$

$= 1260$

Case 2 = 3W, 1M

$^8C_3 \times {}^{10}C_1 = \frac{8\times7\times6\times5!}{5!\times3\times2} \times 10$

$= 56 \times 10 = 560$

Case 3 = 4W

$^8C_4 = \frac{8\times7\times6\times5\times4!}{4!\times4\times3\times2}$

$= 70$

$1260 + 560 + 70 = 1890$

25. Sum 7 = (1,6) (2,5) (3,4), (4,3) (5,2) (6,1)

Sum 7 = 6

Total = 36

$P(7) = \frac{6}{36} = \frac{1}{6}$