a) $n = 6$
$K = 3$

S W W — total sample space $= n^K$

$n^K = 6^3$

$n^K = 216$

b) Probility that sum of 1st and second outcomes is equal to third outcome.

$S = \{(1,1,1)(1,1,2)(1,1,3)(1,1,4)(1,1,5)(1,1,6)$
$\vdots$
$(6,1,1)$
$\vdots$
$(6,6,6)\}$

→ There are only 5 outcomes which have 1st and 2nd outcomes Summation is equal to third outcomes.

$P(A) = \frac{5}{216}$ $\quad \therefore A = 5$ outcomes

$P(A) = 0.23$

Solution:-

A team of 3 player selected from 9 players.

First we have to find total possible outcomes -

$$nC_K = \frac{n!}{K!(n-K)!}$$

where,

$$n = 9, \quad K = 3$$

$$9C_3 = \frac{9!}{3!(9-3)!}$$

$$\boxed{9C_3 = 84}$$

To find probility of two particular player in 9

$$\text{Probility of event} = \frac{\text{no interest event}}{\text{total outcomes}}$$

$$P(\text{2 player}) = \frac{2}{84}$$

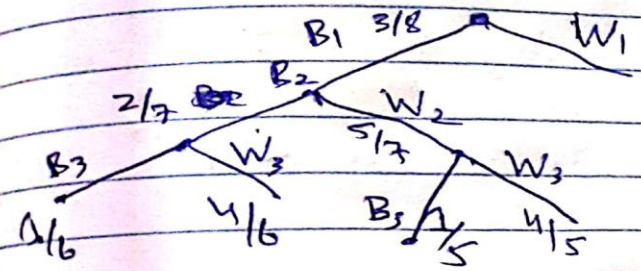
$$\boxed{P(\text{2 player}) = 0.023}$$

Day: M T W T F S

Date: ___/___/___

Question No 3

Solution :-



The ball are exactly 2 black

$$P((B_1 \cap B_2) + P(W_1 \cap W_2)) = P(B_2 \cap B_1) P(B_2) + P(W_1 \cap W_2) P(W_2)$$

$$= \left(\frac{2}{7}\right)\left(\frac{3}{8}\right) + \left(\frac{5}{7}\right)\left(\frac{4}{5}\right)$$

$$P(2 \text{ black}) = 0.1071 + 0.41$$

$$\boxed{P(2 \text{ black}) = 0.51}$$

Question No 4

Solution:-

question, $n = 5$

Choices of each, $K = 3$

So total ways to answer $= n^K$

$n^K = 5^3$

$= 125$

probibility that all answer are same (a, a, a, a, a) will be a one in all outcomes, so

$P(a,a,a,a,a) = \frac{1}{125}$

$= 0.008$

Question No 5

Solution :- (A die toss twice)

→ Event A is the event in which 1st number is greater than or equal to 2nd number

i) $P(A) = ?$

Total sample space = 36

There are 18 interested event, so interest outcomes = 18

$$P(A) = \frac{18}{36} = \frac{1}{2}$$

ii) $P(B) = ?$

Total sample space = 36

There are 6 outcomes in which 6 is comes in first toss. So interested outcomes = 6

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

$$P(A \cap B) = 1/6$$

Date: __/__/__

$$P[A/B] = \frac{1/6}{1/6} = 1$$

$$P[B/A] = \frac{1/6}{1/2} = \frac{1}{3}$$

Question No 7

Solution :-

chips sorted from A, $P(E_1) = 0.5$
" " " B, $P(E_2) = 0.1$
" " " C, $P(E_3) = 0.4$

defective from A, $P(A/E_1) = 0.005$
" " B, $P(A/E_2) = 0.001$
" " C, $P(A/E_3) = 0.010$

To chips defective manufactured by A is

(i) $$P(E_1/A) = \frac{P(E_1)P(A/E_1)}{P(E_1)P(A/E_1) + P(E_2)P(A/E_2) + P(E_3)P(A/E_3)}$$

$$= \frac{(0.5)(0.005)}{(0.5)(0.005) + (0.1)(0.001) + (0.4)(0.010)}$$

$$= \frac{0.0025}{0.0025 + 0.0001 + 0.004}$$

$$P(E_1/A) = \frac{0.0025}{0.0066} = 0.37$$

(ii) $P(E_3|A) = \frac{P(E_3)P(A/E_3)}{P(E_3)P(A/E_3) + P(E_2)P(A/E_2) + P(E_1)P(A/E_1)}$

$P(E_3|A) = \frac{(0.4)(0.010)}{(0.4)(0.010) + (0.1)(0.001) + (0.5)(0.005)}$

$= \frac{0.004}{0.0066}$

$\boxed{P(E_3|A) = 0.60}$