1) -> let -> P -> event where someone is (+ve).

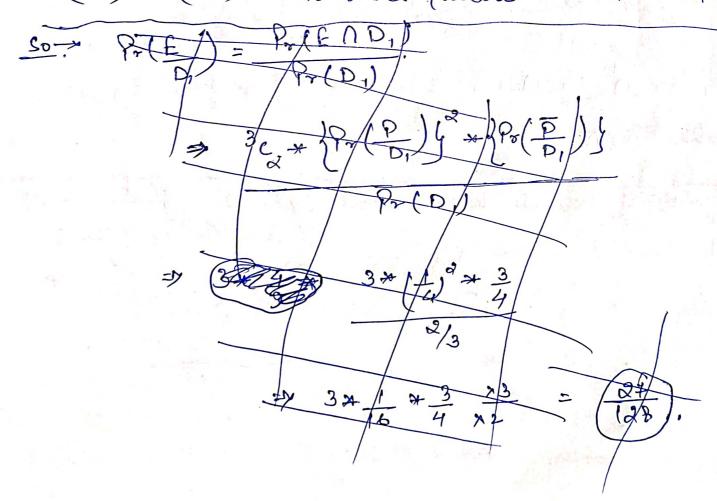
and D; -> event that thereon the person has

Di disease
$$\Re(D_1) = (\%_3)$$
 $\Re(D_2) = (\%_3)$

and given that
$$P(P/D_1) = (1/4)$$

$$P_{r}(\frac{P}{D_2}) = (\frac{1}{2})$$

let E be the exent that out of 3 test, 2 comes to be (+ve) & 1 (-ve). This will follow binomial distribute



$$R(E/D_1) = \frac{P_r(E \cap D_1)}{P_r(D_1)}$$

$$P_r(D_1) = P_r(D_1) \times P_r(E/D_1) \quad \text{d which is also equal to } p_r = 0$$

$$P_r(E \cap D_1) = P_r(D_1) \times P_r(P_1) \times P_r(P_1) \quad \text{fit illness.}$$

$$P_r(E \cap D_2) = \frac{P_r(E \cap D_2)}{P_r(D_2)}$$

$$P_r(E \cap D_2) = \frac$$

Bux (1) - B, empotied (not found empty) of other contains exactly matches.

BOXO ->B2

\$ (N-x) matches of B2 in any order. and after thate (IN-r-1) remove op.2, Next one should be from box D. Yar (B,)=1/2 - Par (B2)=1/2 & semoving (N-1) from B, f(N-v) from B2 out of (2N-v-1) will follow final binomial Distribution. So-Pr(exoctly's' matches wheren'Bis emptied is) > (2N-~-1 N-1 * (2) N-1 * (2) $= \frac{1}{2N-7-1} + \left(\frac{1}{2}\right)^{2N-\delta}$ (answer) (3) > 1= 2 accidents por week. let Ei -> be the exect Rev. which denotes no. of accidents in(i) weeks. (it will follow Doisson (i) Pr(at most 2 acc, during one week) = = Pr(E, 5.2) = Pr(E,=0) + Pr(f,=1) + Pr(F,=2) $= \frac{e^{-\lambda}\lambda^{0}}{0!} + \frac{e^{-\lambda}\lambda^{1}}{1!} + \frac{e^{-\lambda}\lambda^{2}}{\alpha!}$ y e-2. { 1+ 2+ 2= 4

De Ballone - to for for the to be for the 11.0:3.4,5,6,7) & (8,9,10)
Black balls. white balls. let Xmin Denotes R.Y. which is min. m out of all 5 fetched values. Som Xmin = { 1, 2, 3, 4, 5, 65. @ without Re Lacement Pr(Xmin=K) => out of 10 values, one values must be k'. & sext 4 values muet be tetched from (10-14) values. Pr(Xmin=15) => 1 x 10-k C4; for k= 1,2,3,4,5,6 Assumption - Ordering of No. fetched doesn'the matter.

(D. with Replacement -Pr(Xmin=K) = All 5 values can be any value among last (10-1x+1) values. Som Pr(Xmin=K) = (10-K+1) = tor K= 1,2,3,4,5,6 (13)

5). initially > 15 Rs.; let X; R.N. that denotes is 15 Rs. 1. if bets IRs. & wins - gain - (15-1+1)-15 $P_{r}(x_{1}) = (head appeals)$ $\Rightarrow (\frac{1}{2})$ Carried between or => { Tail = herds. Case 6 - Pr(X2) = (2 * 2) gain=>(15-1+2)-15 => (16), -15 3/(4) ; => { Tail = Tail = head 9. Cose () P(×4) = 2 + 2 × 2 gain=>(15-1-2+4)-15 { Tail * Tail * Tail * head }, gains 15-1-2-4+8-15 => (16).-15 => (10). » (16). Por (all tails)=> (tb); gain => (+5) gain = (1); Experted games 1. Pr (while gain L)-15. Pr (gain=-15)

· => 1 × 15 - 15 × 16 6 2 3 7 4 4 W =9 <u>15-15</u> = 0 so, expected gain=0 The state of the Had a far of 1 g bed about the front of E. (01) C Reight with