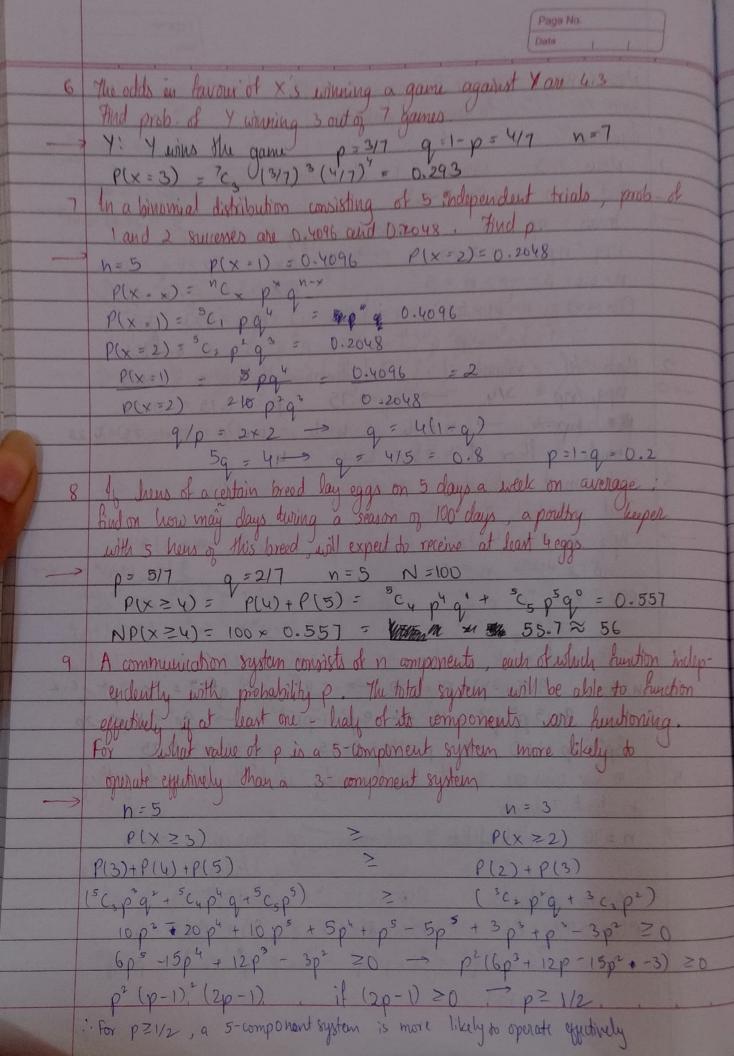
Binomial Distribution Success: p failure: q us-of trials? in

P+q=1 P(x=x)= nCx px qn-x

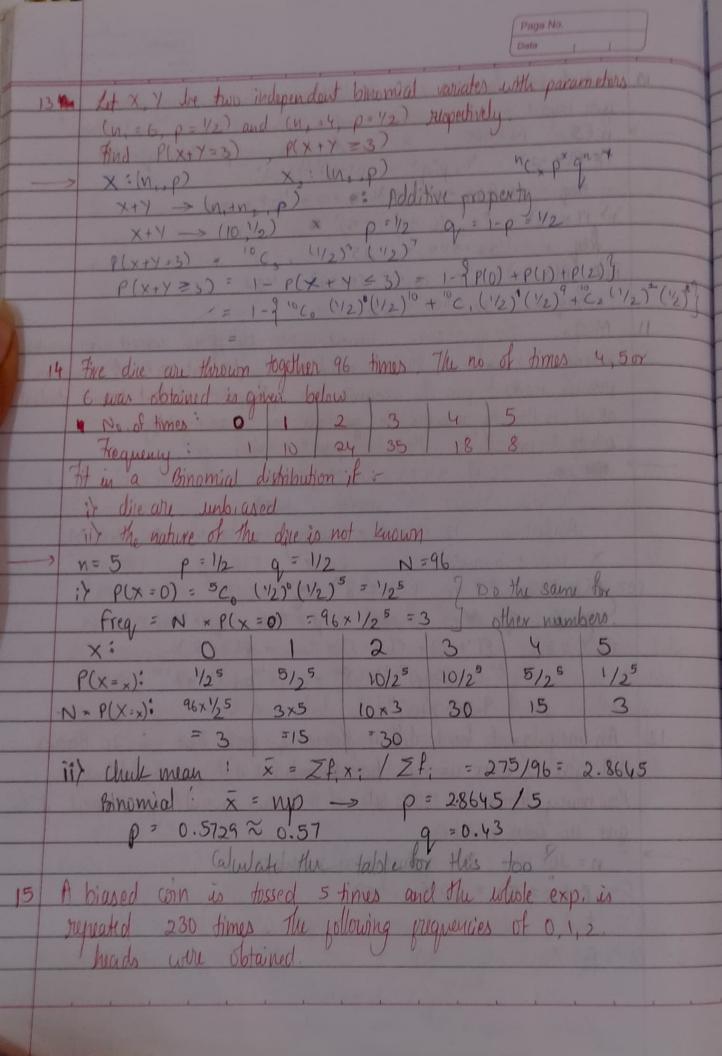
Sum of probabilities:  $Z p(x) = Z n(x p^{x} q^{n-y} = (p+q)^{n} = 1$ Frequency hundron: N x P(x = x)

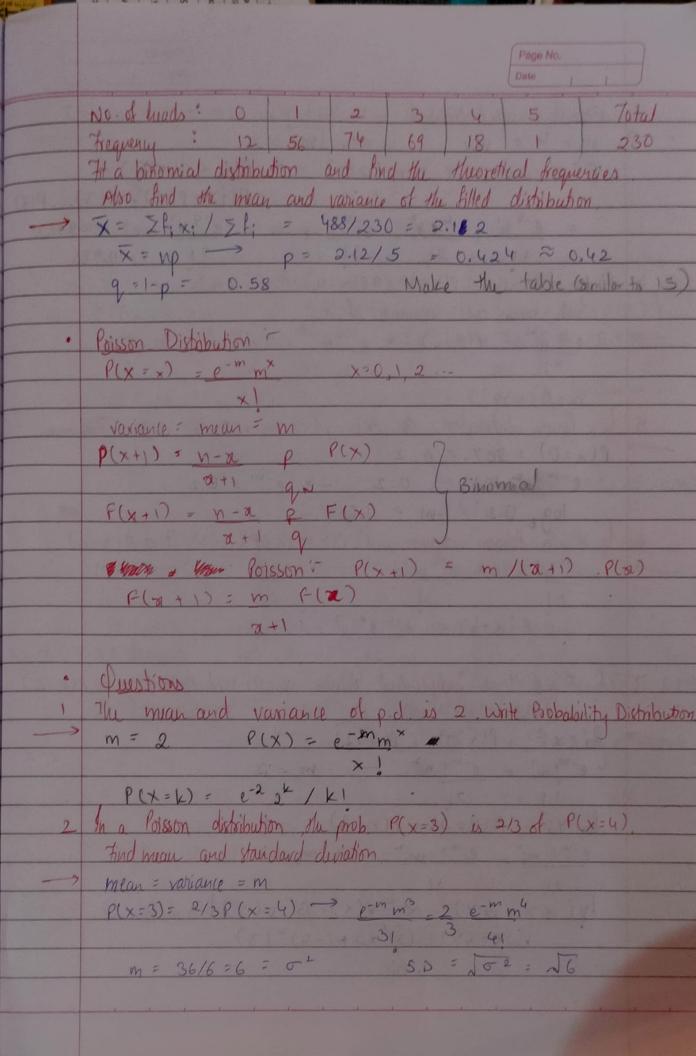


```
you expect to have & 3 Boys and 2 Girls iit 5 girls iiit 5 boys?
n=5 N=800 ×: no. of girls p=1/2 p=1/2 p=1/2 p=1/2 p=1/2 p=1/2 p=1/2
 freq = N(P(x=2)) = 800 × 10 × 1/25 = 200
freq = \frac{1}{32} \times 800 = 25

freq = \frac{1}{32} \times 800 = 25

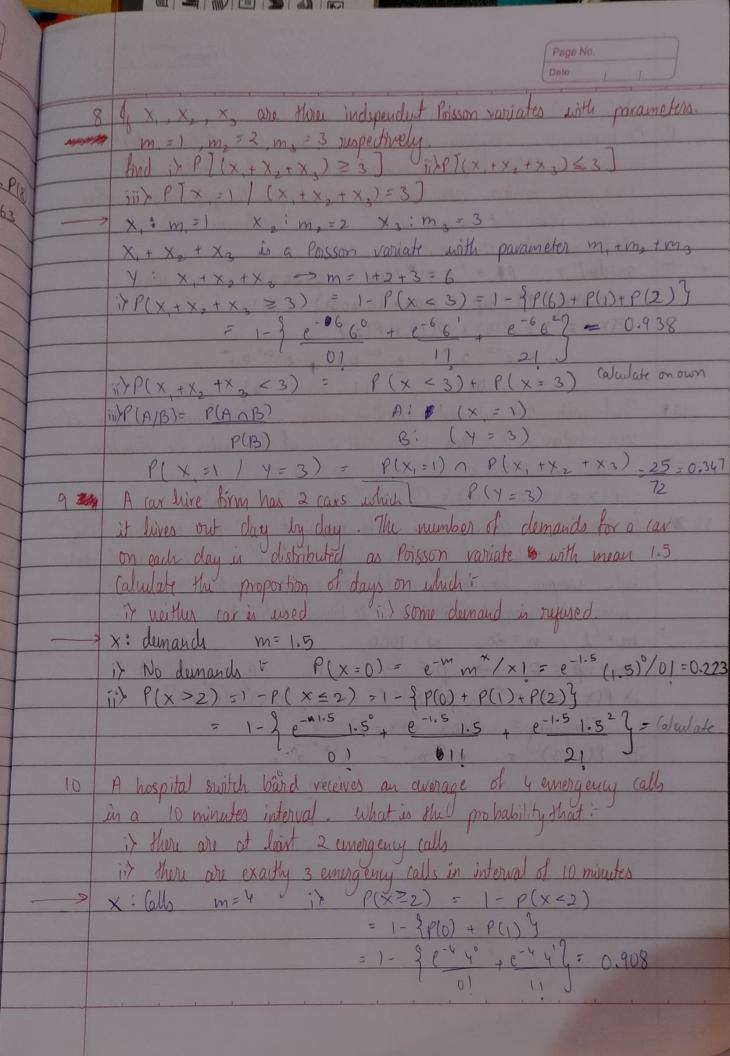
\frac{111}{8} \times \frac{1}{32} \times 800 = 25
Mcco. 20 questions. I correct option out of 4. Correct = +4 marks,
  wrong: - 1 mark. Student must secure at least 50: of maximum
   possible marks to pas the examination suppose student hasn't studied
   at all, so that he answers the questions by questing only
  what's the probability that he'll pass the exam.
             To pass, secure 50% marks = 40M
    Borderline: 12 correct + 8 wrong = 12x4 = -8 = 40 M
  X: correct auswer
        P(X \ge 12) or P(Y \le 8)
    (5p=V_{4}, q=3/4)
p=3/4, q=1/4
p=3/4, q=1/4
p(Y=8)=P(Y=0)+P(Y=1)+--+P(Y=8)
p=3/4, q=1/4
p=3/4, q=1/
  An irregular 6 faced die is thrown & prob that in 20 throws
  it'll give 5 even nos is twile the probthat it'll give 5 odd nos.
  More many times in 10000 sets of 10 throws would you expect it to
  give no even number.
   n=20 x: getting even number
  P(x=5) = 2P(x=15)
 And p, there n=10, N=10000, q=1-p
  > p=1/4 q=3/4 F(x)=np= 10-1/4=2-5
                                           Freq = 2.5 × 10000 = 25000.
```





```
Mean of Poisson distribution is 4. That Plm -20 < x < m+20)
 m= 4 = var = 5 - Jvar = 2
 P(m-20 < x < m+20) -> P(0 < x < 8)
   11 21 31 71 = 0.930
Poisson distribution: P(x=2)=9P(x=4)+90P(x=6)
  Find mean and variance of X.
   e-m mx = P(x=x) -> e-m m2 = 9e-m m4 , 90 e-m m6
  m=0,1.34
 a Poisson distribution, the prob p(x) for x=0 is 20%. Find mean
P(x=0) = 20%= 0.2
   e-m m° /01 = 0.2 -> e-m = 0.2
  loge 0.2 = -m = 1.609
4 x is a Poisson variable and P(x=0)=6P(x=3) Find P(x=2)

e^{-m} m^2 = 6 \times e^{-m} m^3 \longrightarrow 3 \times 2 = m^3 \longrightarrow m=1
4 x and Y are independent Poisson variates such that P(x=1)=P(x=2)
  and PLY=2)= P(Y=3), bind variance of 3x-44.
 for x: P(x=1) = P(x=2)
  e-m, m; = e-m, m2 -> m = 2
  for Y:- P(Y=2) = P(Y=3)
  e-m2 m2 = e-m2 m2 - m2 = 3
  1 ( x x + B y) = x 2 v(x) + B 2 v(y) | to mula
       V(3X-4Y)=(3)^{2}\times2+(-4)^{2}(3)
```



ii) P(x=3) = e-4 43/31 = (a) culate =1/ 11 An innerance company found that only 0.01% of the populating involved in a certain type of incident each year. If its testain that 1000 policy holders were randomly selected from the population, what is the prob. that we more than 2 of its dieuts are involved in such accident neat year? accident r P1 = 0.01 / 100 = 0.0001 n = 1000 average m = np = 1000 x (0.0001) = 0.1  $P(x \le 2) = P(0) + P(1) + P(2)$ = e-0.1 0.1° + e-0.1 0.1° = 01 11 21 Find prob that at most 4 depetive pulls will be found in a box of 200 bulbs if it is kno known that 2% of the bulbs are depertise P = 21 - 0.02 N = 200 $P(X \le Y) = P(0) + P(1) + P(2) + P(3) + P(4)$ In sampling a large no of parts many actured by a machine, the mean members of dejectives in a sample of 20 is 2. Out of 1000 such samples, how many would you expect to contain 3 deputives using it Poinomial distribution it Poisson distribution m=2 n=20 N=1000  $m = np = 2 \rightarrow p = 2/n = 0.1$  q = 1-p = 0.9 p = 1-p = 0.9- Frequency = 1000 x P(X = 3) = 17 P(x=3) 5 e-mm = e-2 23 = x) 3)