

M-2: Plote if  $x_i \sim Poi(\lambda_i)$  is d  $\Rightarrow \sum_{i=1}^{n} x_i \sim Poi(\sum_{i=1}^{n} x_i)$ Let  $T = T_i + T_i$ where  $T_i = \sum_{i=1}^{n} x_i \sim Poi(\sum_{i=1}^{n} x_i)$   $T_i = \sum_{i=1}^{n} x_i \sim Poi(\sum_{i=1}^{n} x_i)$ Plot we ill find distribution of x + yThe Poi( $\sum_{i=1}^{n} x_i + 2\sum_{i=1}^{n} x_i$ )  $\sim Poi(x^i)$ If  $x(x_i, y) = \frac{1}{1} e^{-\lambda_i}(x_i^i)^{\lambda_i}$   $= e^{-n\lambda_i}(x_i^i)^{\lambda_i}$ 

3. Claim: T = Zin, X, is minual sufficient.

Here: n = 1. T = X is minusefficient.

Tin ( 1:1)

:. h(n,y,0)= // + (n:0) f(y,0)

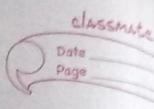
 $\frac{B+f(n;0)=1}{-\sqrt{2n}} \frac{\exp\{-n-\mu\}}{2^{-2}}$ 

1 exp = 2

h(-4.0) = exp{-(n-0) = exp(y-1)

Now, disperone IXI is sufficient mived con

using uniques

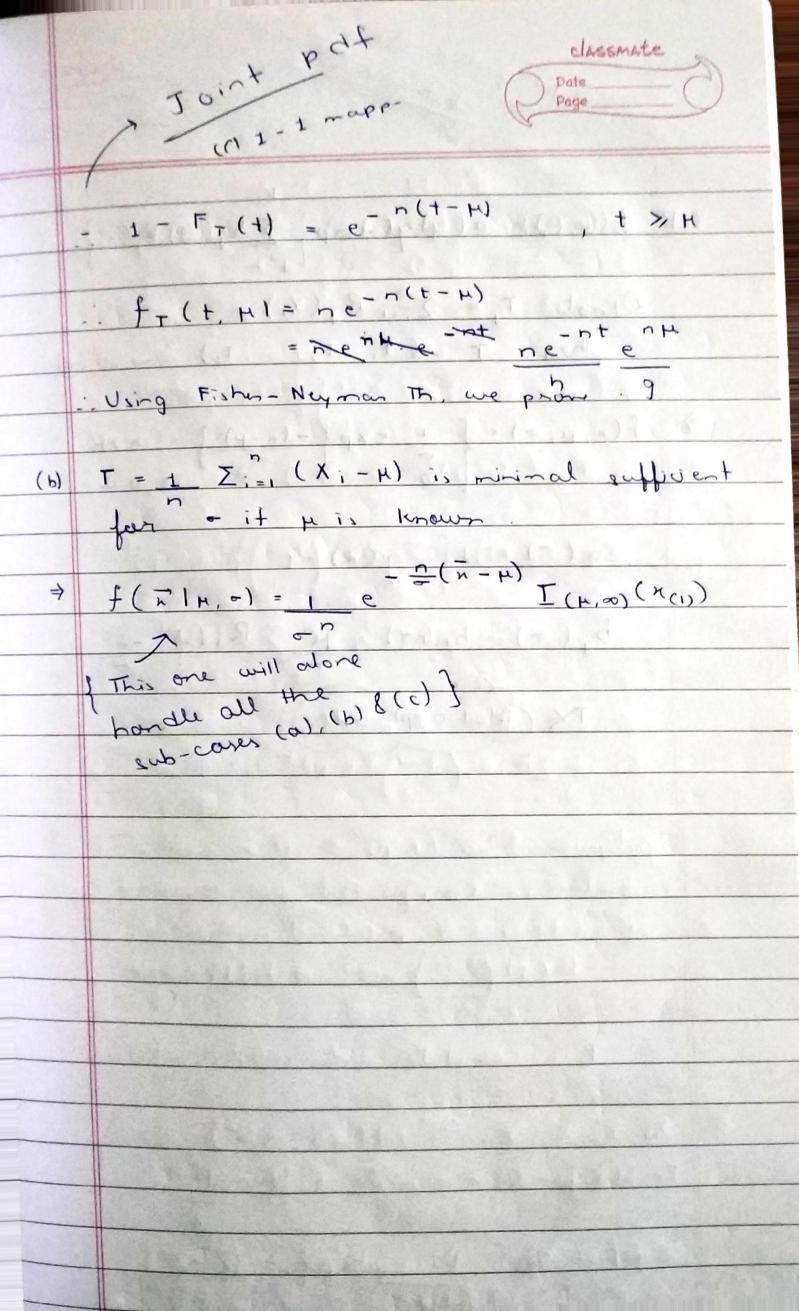


4. First find minimal sufficient statistic T = Z = X ; Let U be the sufficient statistic .Tima function of U. i.e. U uniquely determines T. : Let's see 2 cares: (1) X, = X2 = 0, X3 = X4 = 1 => U = 0 (ii) X = X = X = X = 0 = 0 = 0 But T = 2 in (i) & T = 0 in (ii) = = 5. f(n; -, m) = \( 1 \) e - \( \frac{n-R}{-} \), \( n > H \) 0,0.0. µ ∈ R, =>0 To show: X (1) = mint X1, .... X-] is minimally sufficient for μ if ~ is known.

Pf: f(n, μ) = f e - (n-μ), n > μ

O ο.ω. Let  $T(X_1,...,X_n) = X_{(1)}$   $F_T(t) = P(T < t)$ = P(X, 4+,..., Xn ++) = \(\tau\_i \mathbb{P}(\times, \land\tau+)

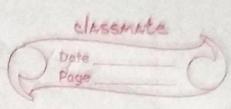
 $\Rightarrow 1 - F_{7}(+) = \pi P(x > +)$   $= \pi e^{-(4-6)}$ 



(e) 
$$f(n,0) = a(0)g(n) \exp \left\{ \sum_{j=1}^{K} b_{j}(0) R_{j}(n) \right\}$$

$$a(r) = 1$$
  $g(x) = 1$ 

· . Tx= Blot applicable



X1, X2, , X2 2 N(0,02), 070  $f(x,0,0^2) = \frac{1}{0 \int_{2\pi}^{2\pi} \exp\{-(x-0)^2\}}$  $\frac{1}{20^2} \cdot h(x,y,0) = \exp\left\{\frac{(y-0)^2 - (x-0)^2}{20^2}\right\}$ ( it is independent of 0 itt. 4-01= (1-0)2 > \(\(\zeriam\) = \(\frac{1}{2}(\(\nu-\theta\)\(\sigma\) Using ideas of Example 2.14  $T = (\sum_{i=1}^{n} X_i^2, \sum_{i=1}^{n} X_i)$  $h(x,y,0) = exp\left[-\frac{1}{20}\left(\frac{\sum x}{1-i}x^2 - \frac{\sum y}{1-i}y^2\right) - 20\right]$  $T = \emptyset \Sigma_{i=1}^n X_i^2$ X., X2, ... , Xn id U(-0,0) 0 >0  $f(x,0) = 1 I_{(-0,0)}(x_{(1)}) I_{(-0,0)}(x_{(n)})$ : h(n,y,0) = I(-0,0)("(1)) . I(-0,0)("(n)) I(-0,0)(Y(1)) I(-0,0)(Y(n)) Let's re-define density, f(n,0)= 1 T[max (-x (1), x (n)) (0)] .. T = max {-X(1), X(m)} is minimal sufficient. 1 (2017 , 0.w. 1, hz, h) < 0