used when n<30, and or is unknown I t- TEST:-* This test is used when σ^2 is known. * Sample Variance $S_x^2 = 1 = \sum_{n=1}^{\infty} (x_n^2 - \overline{x})^2$ Population Vasiance, $\sigma^2 = 1 \stackrel{n}{\leq} (X_i^2 - 4)^2$ 2 Same as Z-test -(11) 2) Constructing a Test Statistic: $T(X) = X - 4 \sqrt{n}$ with n-1 degrees of freedom. 3 Contical Regions:- (degoes of freedom, 2= n-1) $(-\alpha, -t_{1-\alpha})U(t_{1-\alpha}, \infty)$ 4+ 40 U=40 (a) $(-\infty, -t)$ 4 340 4 40 $(t_{1-\alpha}, \infty)$ 4>40 4 SHO



Relia Realization of test Statistic! For an observed sample x_1, x_2, x_3, x_4 $\overline{x} = \underline{\Sigma}\underline{x}$
for an observed sample 1,12, an,
$\chi = \frac{2\chi_i}{2}$
and $t(x) = (x - y_0) \sqrt{n}$
A Cross Plin
Decision Rule: - (Same as Z-test)
(Same as 2 cost)
Que A manufacturer of a certain brand
Ques: A manufacturer of a certain brand of energy bar claims that the average
Caturated lat coment in the public
0.5 gms. Will you support his claim if the
8 bars that you examined for fat
8 bars that you examined for fat content were found to be contain
0.6, 0.7, 0.7, 0.3, 0.4, 0.5, 0.4 and 0.2 gms of
Saturated fat ? Take & = 0.05.
→ <u> </u>

* This test is used when $\sigma^2 = \sigma^2$ is given.

* We assume the Distribution of the Population sample is Normal. Steps: (ii)(111) 2) Constructing a Test Statistics: - $\chi = (M-1)S^2$ Critical Regions: $(-\mathbf{O}, \chi^2)$ Realization of test Statistic: $\chi^2 = (n-1)s^2$

Date



3 Decision Rule (Same as z-test)

Que A manufactures of car batteries claims that the life of a Company's batteries is approximately normally distributed with a standard deviation of 0.9 yrs. If a random sample of 10 of these batteries has a standard Deviation of 1.2 yrs, do you think 5 > 0.9%.



* we use this test for comparing.

Variances ie

Whether 5,2 = 5,2 or 5,2 \ = 5,2

* We assume the Population to be

Normally Distributed.

Steps:

(B)

(B)

(B)

(B)

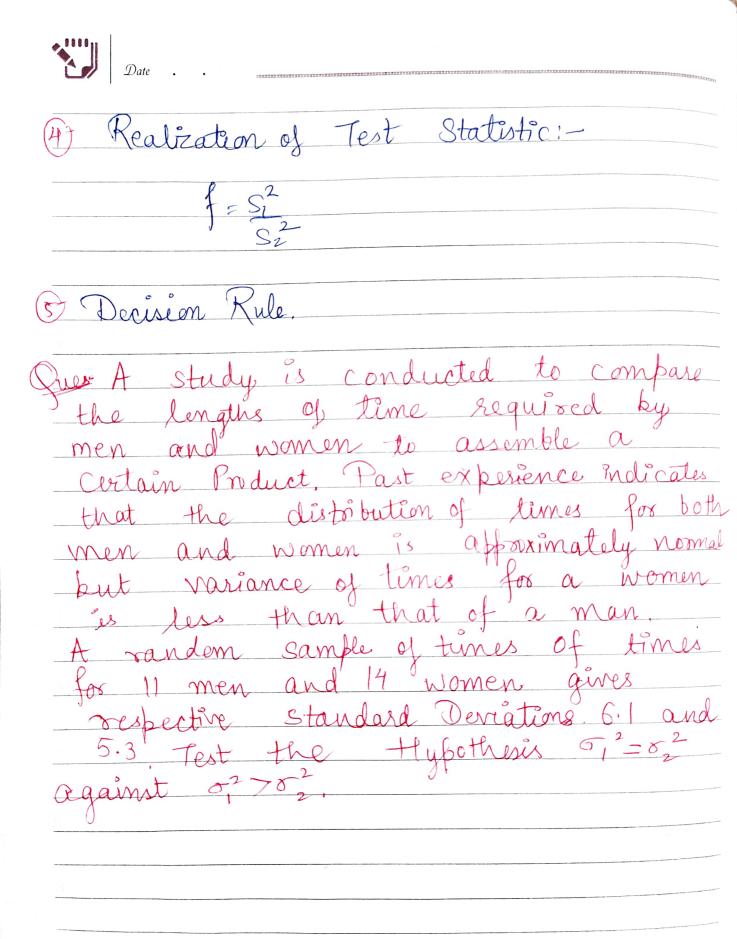
(Constructing a Test Statistic:

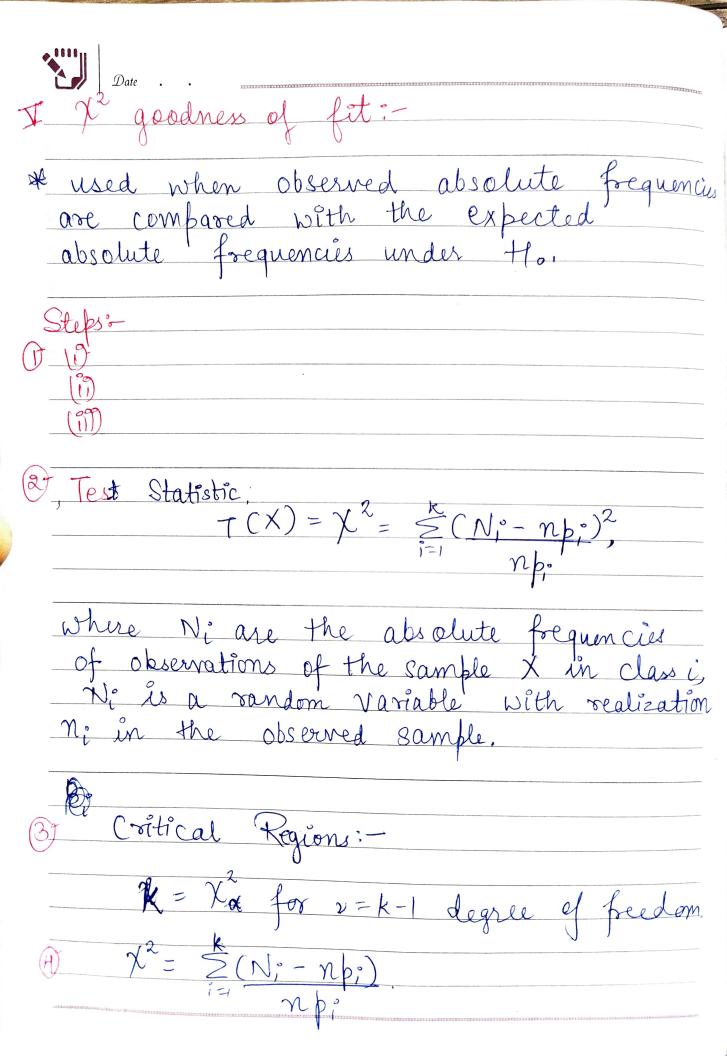
Constructing a Test Statistic:- $f = \frac{S_1^2}{S_2^2}$

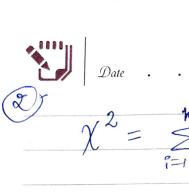
Also, we've $f(\nu_1,\nu_2) = 1$ $f(\nu_2,\nu_1)$

3) Critical Regions;

(a) $t = t_0 + t_1 + t_2 + t_3 + t_4 + t_5 + t_5$







$$\chi^2 = \sum_{i=1}^k (N_i^2 - N_i^2)^2$$

(3) We've i N_i : p_i : mp_i :

1 315 $\frac{1}{76}$ 312.75

2 108 $\frac{3}{76}$ 104.25

3 101 $\frac{3}{16}$ 104.25

4 32 $\frac{1}{16}$ 34.75

 $K: \chi^2_{k-1, \infty} = \chi^2_{0.05}$ for degree of freedom, 2 = 4 - 1 = 3

$$(4)$$
 $\pi^2 = 0.47$

3 .: 0.47 < 7.815 : Ho is Accepted.