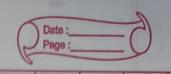
	PRADNYA TOPALE
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100	Tutorial 5
	Van(y) E[y*] - E[y]*
81.	Null Hypothesis Ho: p=0.7
	Alternate Hypothesis H, p \$ 0.7
	Level of significance d = 0.10
	Test Statistic: Binomial variable X with
	p = po = 0.7 and n = 15.
(#	19 We have, + 0+09 (+1W)9
(5-01	X = 8 and $npo = 15(0.7) = 10.5$
	$P = 2P(X \le 8 \text{ When } p = 0.7)$
	= 2 \(\delta\) (\delta\) (15,0.7)
5	(H) P (H   W) = P (W, W) = P = (W   H) P (H)
	(=02(0.1311)(0.00)
	= 0 = × 0 · 2622
(66666	0-1) 2, P > 0.10
(2-01-1)	Thus
	We cannot reject Ho. There is insufficient
	evidence to doubt the buildor's claim.
	EVALUE OF THE PROPERTY OF THE
92.	Null Hypothesis Ho: p = 0.6
	Alternate Hypothesis Hi: p > 0.6
	Level of significance d: 0.05
	We have,
	x = 70, n = 100, po = 0.6
	Test Statistic = z = x - npo
	Inpogo



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P = 0.0207 MADIA 21 LOZAMONA

As P< &, we reject to and conclude that the new drug is superior to commonly prescribed one.

P2 be the propagation of Mumbai voters and residential

 $\hat{P}_{1} = 120 = 0.6$   $\hat{P}_{2} = 120 + 240 = 0.514$  200 + 500

 $\hat{P}_2 = 240 = 0.48$   $\lambda = 5\% = 0.05$ 

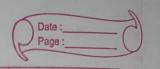
Null Hypothesis Ho: P1 > P2.

Alternate Hypothesis H1: P1 > P2.

$$Z = \hat{P}_1 - \hat{P}_2$$

$$\int \hat{P}_p (1 - \hat{P}_p) \left( \frac{1}{n_1} + \frac{1}{n_2} \right)$$

= 0.6-0.48



## = 2.869

## P=P(Z72.869) = 0.0044

As P<x, we reject Ho and conclude that the proportion of Mumbai voters favouring the proposal is higher than the proportion of surrounding area voters.

- Alternate Hypothesis Ho: p = 0.2

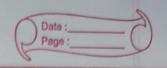
  Alternate Hypothesis H1: p > 0.2

  The critical region is in right tail
  - δ) Null Hypothesis Ho: μ=3
    Alternate Hypothesis Hr: μ ≠ 3
    The critical region is in both tails.
  - Alternate Hypothesis Ho: p = 0.15

    The oritical region is in left tail.
  - d) Null Hypothesis Ho: & \mu = 500.

    Alternate Hypothesis HI: \mu > 500.

    The oritical region is in right tail.
  - e) Null Hypothesis Ho:  $\mu = 15$ Alternate Hypothesis H,:  $\mu \neq 15$ The critical region is in both tails



Let  $\mu$  and  $\mu_2$  be the population mean robustness 95 of laptops supplied by company A and B resp. Null Hypothesis Ho:  $\mu = \mu_2$ Alternate Hypothesis HI: µ1 ≠ µ2 Level of significance d = 0.05.

 $X_1 = 1$   $X_1$   $X_1$   $X_2$   $X_3$   $X_4$   $X_4$ 

= 9.3+8.8+6.8+8.7+8.5+6.7+8+6.5+9.2+7 degree of Olecdom 1

annot assume that

 $\overline{X}_2 = 1 \leq \chi_{2i}$ 

= 11+9.8+9.9+10.2+10.1+9.7+11+11.1+10.2+9.6

10

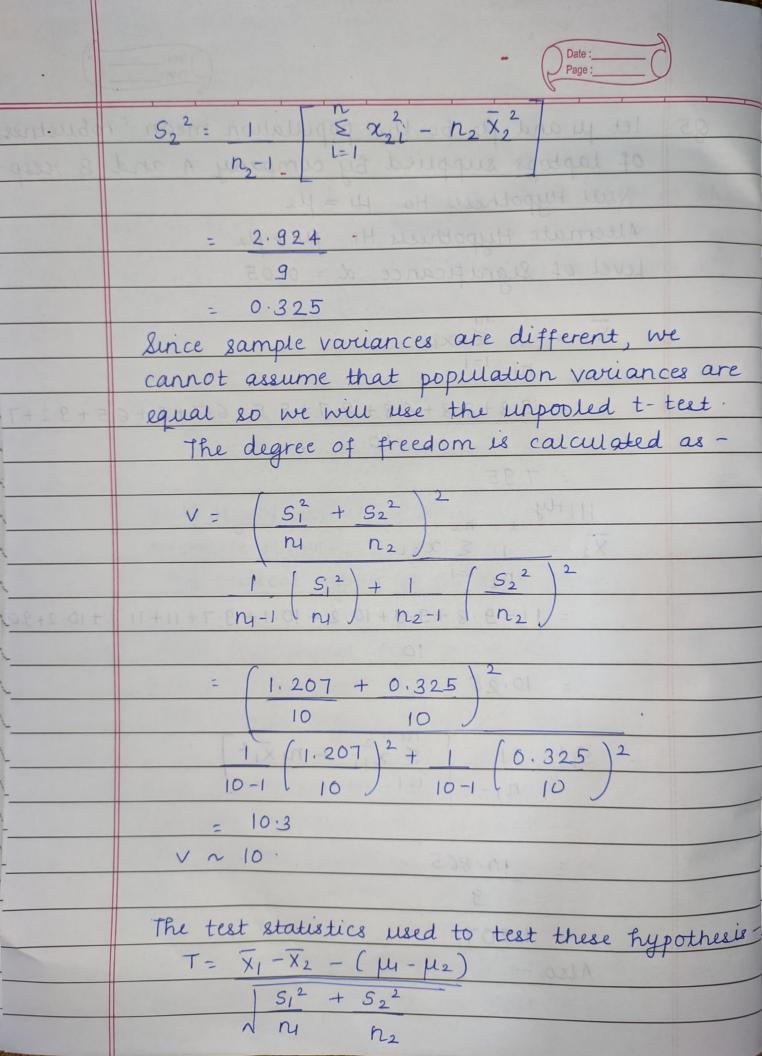
= 10.26

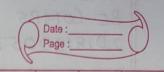
 $S_1^2 = 1$   $\{ x_1^2 - n_1 x_1^2 \}$ 

= 10.865

sende 1.207 been soldenberg der an

Also - College





t- distribution with v=10 degrees of freedom.

Also

Under the null hypothesis we have  $\mu_1-\mu_2=0$  so value of t-test is —

T= 7.95 - 10.26 = -5.9

N 10 10

Since the test is two-sided, then the value of test is the doubled area under deneity curve of t-distribution with 10 degree of freedom, right of the absolute value of test statistic

|t| = |-5.90| = 5.90 le the p-value is 2P(T>, 1t1) = 2P(T>, 5.90)

to.0005 (10): 4.587 and since [t]: 5.90 is even greater than P(TZ 5.90) < 0.0005

P-value < 0.001

As p<d, we can reject the null hypothesis in favour of the alternate hypothesis and conclude that the mean robustness of laptops is not the same for 2 companies