



Coimbatore – 35 DEPARTMENT OF MATHEMATICS

UNIT – I TESTING OF HYPOTHESIS

JEST OF SIGNIFICANCE OF SMALL BANPLES ! Student's t-test : JEST JOR SINGLE MEAN Null hypothesis . Ho: H= Ho. Test statistic, $t = \frac{\tilde{n} - \mu}{S/\sqrt{n-1}}$ if sp is given. E = x- H if SD & not given . $\overline{P} = \frac{1}{2} \left(\frac{n}{n-1} \right)^2 = \frac{1}{2} \left(\frac{n}{n-1} \right)^2$ Degrees & Freedom: V=n-1 NOTE: Confrolence Limit: I + t or s 1) A random sample of 10 boys had the following Ig's. 70, 120, 116, 101, 88, 83, 95, 98, 107, 100. Do there data support the anumption of a population mean sig's of 100?. First a reservable sareje to which must of the mean Ig's value of sample to boys. <u>Soln:</u> given: n=10, µ=100 T = 70+120+110+101 +88+88+95+98+107+100 10 - 1 = 97.2.

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To find s : $g^2 = \leq (n - \pi)^2$ n-1 7L: 70 120 110 101 88 88 95 98 107 100 カーえ : -27.2 22.8 12.8 3.8 -9.2 -142-2.2 0.8 9.8 2.8 (x-7)2: 739.84 519.84 163.84 14.44 84.64 20.64 4.84 0.64 9604 7.84 $\sum (n-\pi)^2 = 1833.6$ $\therefore S^2 = \sum (n-\pi)^2 = \frac{1833.6}{10-1}$ = 203.73 ⇒ 3 = 14.24. step1: Formulating Ho and HI ! Ho: 4 = 100 H1: M \$ 100 (Two failed test) stip 2 : Los. at a = 5% = 0.05. steps: Test statistic, E = n-M s/vn = 97-2-100 14.27/Vio = -0.62 161 = 0.62

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Step 4: E_{tab} for degree g -freedom M = n-1 N = 10-1 = 9W t tab : 2.262 (tx) Step 5: conclusion: $E = 0.62 < 2.262 = t_{x}$ \therefore Ho & accepted at 5.1. Los Cut the population mean lg's & too. Confidence limit: $M = \overline{\chi} + E_{x} \frac{3}{\sqrt{n-1}}$ $= 97.2 \pm 2.262 \times \frac{14.27}{\sqrt{10-1}}$ = 107.95, 86.45: s) the weight g to peoples g a locality are pound to

3) The Weight of to peoples of a sociality are found to be to, 67, 62, 68, 61, 68, 70, 64, 64, 66 Jug it is descenable to believe that The average weights of people locality equates than 64 kg, test at 5% los. <u>goin:</u> Given: n = 10, $\mu = 64$ $\overline{n} = 70 + 67 + 62 + 68 + 61 + 68 + 70 + 64 + 64 + 66$ $\overline{n} = 66$

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To find S: $8^2 = \leq (n - \bar{n})^2$ n-1 n: 70 67 62 68 61 68 70 64 64 66 пл. 4 1 - 4 2 - 5 2 4 - 2 - 2 0 (1-50); 16 1 16 4 25 4 16 4 4 0 $\leq (n-\pi)^2 = 90$ $S^{2} = \frac{S(n-\bar{n})^{2}}{n-1} = \frac{90}{10-1} = 10$ 5 = 3.16 Step1: Jornulating Ho and Hi: Ho: H = 64 HI: M> 64 (one tailed test - right) step 2: Los at a= 5.1. sleps: Test statute, t= x-H = 66-64 3.16/VIO = 2.02 step 4: Etab for degree g freedom, V=n-1 = 10-1 = 9 as trak: tx = 1.833 (at two tailed at 10%)

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steps: Conclusion: E=2.02>0-9165=tx .: Ho & rejected at 5% Los weight & people locality is greater than 64.kg.

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