PARSHWANATH CHARITABLE TRUST'S



## A.P. SHAH INSTITUTE OF TECHNOLOGY

Department of Computer Science and Engineering **Data Science** 



Semester: Subject: Statistics for AT & DS Academic Year: 2028-2024
P-VALUE: *Probability value (between o and 1)
*P-value is a probability value (between o and 1)  *P-value is also known as probability value at
which null hypothesis is rejected.
* P-values are generally expressed as decimals.  * Wually p-values of 0.05 is used, which means
50% of the relate is random.
\$0% of the relate is random.  I Smaller the p-value more significant is the
experiment.  # If $P < = \alpha$ (level of significance) then reject  the mult supothes is.
* If P<=a(level 4)
the fail to reject the neil
the null hypothesis.  If [P > \int , then foil to reject the null hypothesis.  hypothesis (or) accept null hypothesis.  hypothesis single population mean (xTest using p-value).
V. AMPTRIDATO
Example: - zingle population mean (zTest using p-value).  Venelo: claims that average weight of box is 1.84kg.  Venelo: claims that average weight and find sample
Comer randomly choose
weight as 188kg. Suppose population standard deviation is 0.3kg. Use $\alpha = 0.05$ , and test for
hupothesis that true mean is of shipmens is
1.84kg. Calculate wring p-value.
Bolution:- Ho: H=1.84, Ha: M≠1.84, x=0.05
Subject Incharge: Prof. Sarala Mary Page No. 4 Department of CSE-Data Science   APSIT



## A.P. SHAH INSTITUTE OF TECHNOLOGY

Department of Computer Science and Engineering





Subject: Statistics for ATLDS Academic Year: 2023 2024.

N=64, X = 1.88, 6=0.3.

Zcal = X-H

= 1.88-1.84 0.3/164

Ical = 1.07

Calculate p-value:

P=1- zvalue of 1.07. (Refer xtable).

= I- 0·8577 ·

P = 0.1483

Compare p and d value: - (Multiply pxa since it is 0.2846 0.1423 \$>0.05

It faik to reject the null hypotheris or it

accepts the null hypothesis.

Subject Incharge: Prof. Sarala Mary Page No. 2

Department of CSE-Data Science | APSIT





## A.P. SHAH INSTITUTE OF TECHNOLOGY

Department of Computer Science and Engineering **Data Science** 



Semester:

Subject: Statistics for AJLDS Academic Year: 2023-2094.

Example 2: 11) The average weight of all residents in town XYZ is 16816s. A nutritionist believes the true mean to be different. She measured the weight of 36 individuals and found mean to be 169.5 lbs with a standard deviation of 3.9. (a) State the null and atternate hypotheris (b) At a 95% confidence level, is there enough evidence to discard the null hypothesis? (Use the p-value method).

Solution:

801=H: off

Ha: H +168

n= 36, X= 169.5, 8=3.9.

C=0.95, d=1-c = 0.05

Zc = X-14 = 169.5 - 168 = 1.5 6.65 3.9/\36

Ze = 2.31

Refer x+ table to calculate pralue. P=1- xvalue of 2.31.

P=1-0.9896 = D.D104.

Subject Incharge: Prof. Sarala Mary Page No. 3

Department of CSE-Data Science | APSIT





## A.P. SHAH INSTITUTE OF TECHNOLOGY

Department of Computer Science and Engineering
Data Science



Subject: Slatictice for ATEDS Academic Year: 2023 20 24.

Compare p and of Value:

Multiply p with a since it is two twiled:

0.0208 .< 0.05.

Reject the null hypothesis.

Subject Incharge: Prof. Sarala Mary Page No.\_

Department of CSE-Data Science | APSIT

