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REGISTRATION NO OF STUDENT: **20BCE1798**

SLOT: **L19 L20.**

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LAB EXPERIMENT 8.

Q.

1. Check whether two groups have the same mean.

2.F _test

3. Suppose that 10 volunteers have taken an intelligence test, here are the results obtained. The average score of the entire population is 75 in the same test.Is there any significant difference (with a significance level of 95%) between the sample and population means, assuming that the variance of the population is not known.

Scores: 65, 78, 88, 55, 48, 95, 66, 57, 79, 81.

4. Comparing two independent sample means, taken from two populations with unknown variance. The following data shows the heights of individuals of two different countries with unknown population variances. Is there any significant difference b/n the average heights of two groups.

x1=c(175,168,168,190,156,181,182,175,174,179)

x2=c(185,169,173,173,188,186,175,174,179,180)

5. Five Measurements of the output of two units have given the followingresults (in kilograms of material per one hour of operation).Assume that both samples have been obtained from normal populations,test at 10% significance level if two populations have the same variance.
A=c(14.1,10.1,14.7,13.7,14.0)

B=c(14.0,14.5,13.7,12.7,14.1)

```
x< - c (91 , 87 , 99, 77 , 88, 91)
y<- C (101, 110, 103, 93, 99,102
r =z. zest (x, y, a1rer not i ve=" es s " , var. equal =TRUE)

if(r $p. vat ue<0. 08)(print(”hypothesJs rejected”)}eJse(print(”Hypothes4s accepted”j}

x<- rnorm(25, mean=0)
y<- rnorm(25, mean=1)
r1=var.test(x,y)
r1
if(r1%p.vatue<0.05){print(”hypothesJa rejected”)}else{print(”HypotheaJa accepted”)}

x=c(65, 78, 88, 55, 48, 95, 66, 57, 79, 81j
xbar =rnean (x)
s d=s qrv (var (x) )
zu=F 5
alpha=O.O9
n=l ength(x}
t=abs (xbar -mu / (sd/sqrt {n-1} }

ta=qt(1-(alpha/2), n-1)
if(tma)(print(”hypothesis accepted”j}else{print(”Wypothesis rejected”)}


x1=c(175,168,168,190,1S6,181,182,1Z5,174,179)
x2=c(185,169,173,173,188,186,175,174,179,180)
r r =z. zest (xl , yl , a11 er not i ve= " es s " , Var. equal =TRUE)

If {r r $p . vat ue<O. 05) ( pr i nt {" hypothes ñ s rej ected " ) jets e{pri nt "Hypothe sñ s ac c ept ed " ) }


A= C {14. 1, 10. 1, 14. 7, 13. 7,14. 0}
B =C {14. 0, 14. 5,13. 7, 12. 7 ,14. 1}
r1=var. zest(A, B,conf . 1eve1=o. 90}
r1
If {r 1$p . vat ue<O. 05) ( pr i nt {" hypothes ñ s rej ected " ) jets e{pri nt "Hypothe sñ s ac c ept ed " ) }
```

```
> x=c (65 , 78, 88, 55 , 4 8 , 9 S , 66 , 57 , 79, 8l )
> xbar=mean(x)
> sd=sqrt(var(x))
> mu=75
> a1pha=O. 05
> n=l ength(x)
> i=abs(mbar-mu) / (sd/zqrt(n-1))

[1j 0.7428466
> ia=qt(1-(alpha/Z), n-1)
> if(i<ra){prinr("hypothesis accepied")}e1se{prini("Hyporhesis rejected")}
[1j "hypothesis accepted"


> X1=c(175,168,168,190,1 S6,181 ,18Z,175,174,179)
> xZ=c(185,169,173,173,188,186,175,174,179,1g0}
> rr -z. zest(x1, y1, alzer not 1ve-"l es s", \rar. equal-TRUE)
> rr

        no sample r-resr

data:    x1 and y1
t = 277. 29, df = 209, p-vztJ u e = 1
a4iernarive hypoThesis: rrue difference in means is less rhan 0
95 percent confidence interval:
     -laf 175.7915
sample eszimares:
   mean of x    mean of y
174.80000000   0.04975124

> If (rr $p.          05} (pr i nt " hypothes J s rej ected ") jet s e(pr1nt. "Hypothes J s accepted " } }
 1§ "Hypothes s accept ed"
```

```
> A=c(14.1,10.1,14.7,13.Z,14.0)
> B=c(14.0,14.5,13.7,12.7,14.1)
> r1=var.teat(A,B,conf.level=0.90)
> r1

          r test to compztr e tv/o var ñ ances

dama:    A and B
F = 7. 3 304, num df = 4 , denam df = 4, p -vat ue = 0. 07 9 54
al ternata be hypothes i 3 : t r u e r at1 o of van ances J s nat equ ztl to 1
90 percerrc conf dence i nt erval :
   1. 14749 46. 82852
s ampl e eszñ mat:es :
r atJ a of var ances


> Jf(r1$p. value<O. 05)(print("hypothes4s rejected")}else{print("Hypothes4s accepted")}
[1§ "Hypothes s accept ed"
```
