**Answer 1**🡪 **Business Objective**

1.**Data Collection**

Y=Diameter of Unit A and Diameter of Unit B(Continuous )

X=Unit A and Unit B (discrete)

2.**Normality Check**-🡪

Open Data with minitab 🡪 stats-🡪 Choose Normality check

Unit A 🡪p=.287 , alfa=.05

Unit B 🡪p=.687 , alfa=.05

“If p is high Ho fly 🡨Ho Accept

If p is low Ho go 🡨 Ha Accept”

So here p is high so Ho accept so its mean No Action

So we can say that Data is Normal

3.**External condition is not equal**

4. **Variance checking**

Using Minitab

P=0.297, alfa=.05

H=Ho Variance are equal

Ho Variance is Equal

Ha Variance is not Equal

5.**T test for Equal Variance**

Hypothesis

Case1:

Ho: Diameter of unit A<=Diameter of Unit B

Ha: Diameter of unit A> Diameter of unit B

Case2:

Ho: Diameter of unit A = Diameter of unit B

Ha: Diameter of unit A “Not Equal” Diameter of unit B

P=.472 ,alfa=.05

Ho accept no Action

Ho: Diameter of unit A< Diameter of unit B

Ha: Diameter of unit A> Diameter of unit B

P=.236 alfa,=.05

Ho Accept No Action

**Conclusion : There is no difference between Diameter of Cutlets**

**Answer2--> Business Objective**

**1.Data Collection**

Y🡪Turn Around time of Report of Laboratory1, Laboratory2, Laboratory3, Laboratory4 (continuous)

X🡪Report of Laboratory1, Laboratory2, Laboratory3 Laboratory4(descrete)

**2. Compare the population with each other**

**3**. **Normality check🡪Minitab**

L1🡪p=532

L2🡪p=.733

L3🡪p=.577

L4🡪p=419

Alfa=.05

Ho Accept mean No action Data is Normal

**4.Variance Checking -🡪Minitab**

P=.070

Alfa=.05

Ho Accept No Action

Variance Are equal

**5. Perform One Way ANOVA Test**

**Hypothesis**

Ho: TAT of L1=TAT of L2= TAT of L3= TAT of L4(No Action)

Ha: At least one is not equal (Take Action)

P=0 , Alfa=.05

Ha Accept So it mean Take Action

Conclusion 🡪TAT of Report is not equal

**Answer3🡪**

**1. Data Collection**

Y-->Sales of Products in different-2 region (east, west, south, north) (Continuous)

X-->Male and Female (Discrete)

**2. Normality Checking**

East p=.227

West p=.227

North p=.227

South p=.227

Data is normal

**3. Variance checking**

p=.598

Variance is equal

**4. Hypothesis**

Ho: male female ratio is = in across region (no action)

Ha: different (take action)

P=.820 no action

Conclusion ratio of male and female across region is qual

**Answer 4🡪**

**Data Collection**

Y-->Error collection in 4 country(discrete)

X--> 4 country

Here Y and X both are discrete and population is more than 2 so we apply chi-square test

First we merge the Data in Minitab

Data--->Stack-->create a new column and Row

**Hypothesis**

Ho: Defective by centre 1= Defective by centre 2= Defective by centre 3= Defective by centre 4(No Action)

Ha: If any changes then (take Action)

p=.277 , alfa=.05

p is high so Ho accept so no need to take any action

**Answer 4(b)🡪**

**Data collection**

Y--->Male and Female (discrete)

X--->Weekdays and Weekend

Both are discrete and population is 2 so we apply 2 proportion test

**Hypothesis**

**Ho:** % male versus female in weekend = %male versus female in weekdays

**Ha:** % male versus female in weekend **not equal**  %male versus female in weekdays

p=0 So Take Action

Ho:%male versus female in weekdays < % male versus female in weekend (No Action)

Ha:%male versus female in weekdays > % male versus female in weekend (Take Action)

P=1.00, Alfa =.05

Ho accept no Action