# APPENDIX

*Treatment 1 ( Experimental group )*

**Degrees of Comparison of Adjectives**
**( tingkat perbandingan )**

Underline the adjectives below !

1. I saw a good film last night .
2. Our house is quite big .
3. Ani is ugly .
4. Their expensive car broke yesterday .

Degrees of Comparison can be distinguished into three , they are : positive , comparative , and superlative .

I . ***Positive ( tingkat setara )***

Adalah : perbandingan yang menyatakan persamaan / perbedaan dua benda .

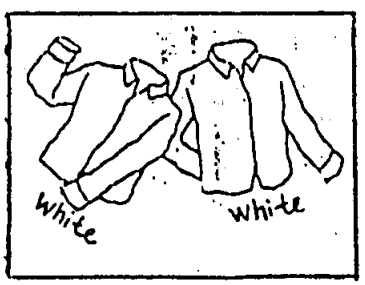
a . Persamaan :

1 . As ... as

Pola Kalimat :

**Subject + predicate + as ... as + Subject + predicate**

e.g :




My shirt is as white as yours .

2 . The same ... as

Pola Kalimat :

**Subject + predicate + the same ... as + Subject + predicate**

**Subject + predicate + the same as + Subject + predicate**

e.g : My shirt is the same colour as yours .

My shirt is the same as yours .

b . Perbedaan :

- Different from

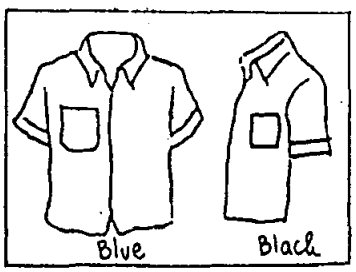
Pola Kalimat :

**- Subject + predicate + different + Noun + from + Subject + predicate**

**- Subject + predicate + different from + Subject + predicate**

**- Subject + predicate + different**

e.g :




My shirt is different in colour from yours .

My shirt is different from yours .

Our shirt's colour is different .

II . *Comparative ( tingkat lebih )*

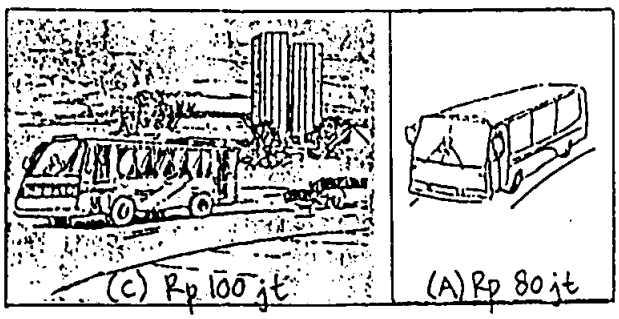
Adalah : perbandingan antara dua benda yang menggunakan akhiran –er atau awalan more .

Pola Kalimat :

**Subject + predicate + comparative degree + than + Subject + predicate**

a . - One syllable .

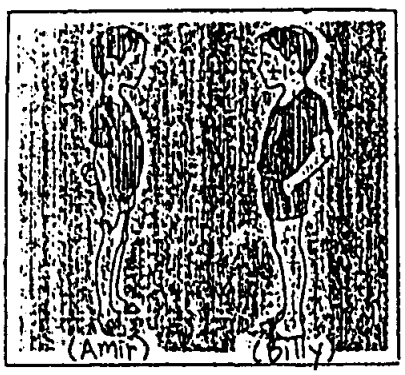
e.g :




The bus A is cheaper *than* the bus C . ( cheap ----- cheaper )

- One syllable which ending with a consonant and preceded with a single vowel , for examples : big , red , fat ; double the final consonant and add – er.

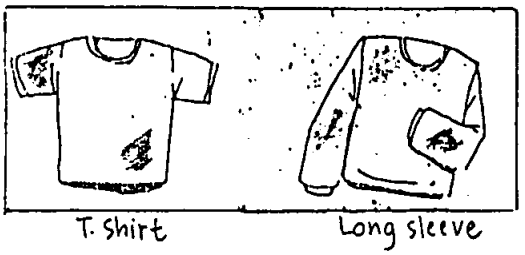
e.g :




Billy is bigger *than* Amir . ( big ----- bigger )

b . - Two syllables which ending in –y , the –y becomes i and add –er .

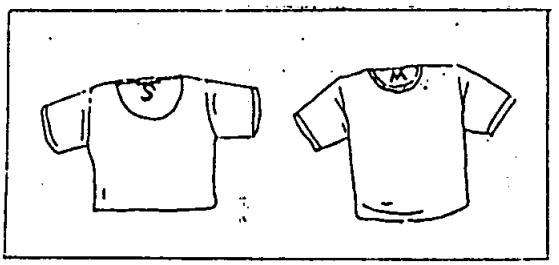
e.g :




The long sleeves is dirtier *than* the T-shirt . ( dirty ----- dirtier )

- Two syllables which ending with –e , add – r .

e.g :




The size M is larger *than* the size S . ( large ----- larger )

c . More than two syllables : ( Put more before the adjectives ! )

e.g :


Lina looks more beautiful *than* Susi . ( beautiful ----- more beautiful )

III . ***Superlative ( tingkat paling )***

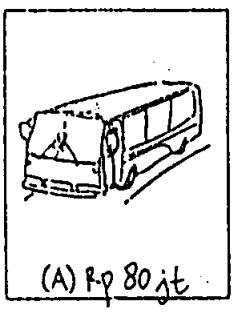
Adalah : perbandingan tiga benda / lebih yang menggunakan akhiran –est atau awalan most .

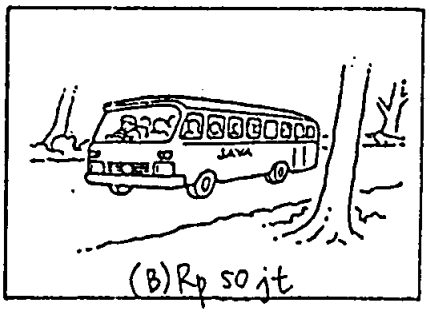
Pola Kalimat :

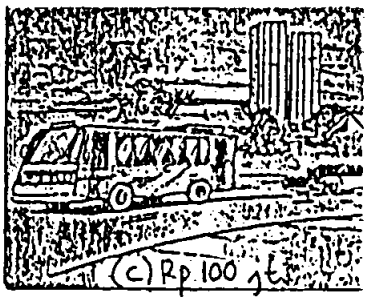
**Subject + predicate + the + superlative degree + complement**

a . - One syllable .

e.g :



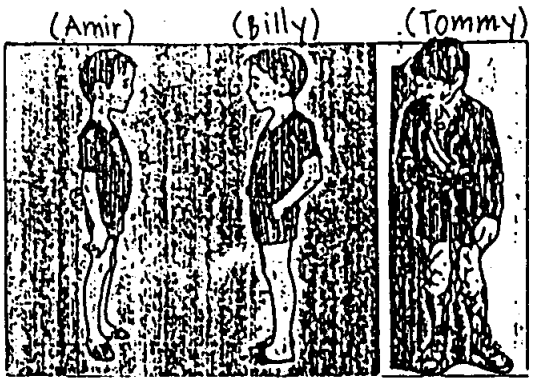




The bus B is *the* <u>cheapest</u> of all types . ( cheap ----- cheapest )

- One syllable which ending with a consonant and preceded with a single vowel , for examples : big , red , fat ; double the final consonant and add -est .

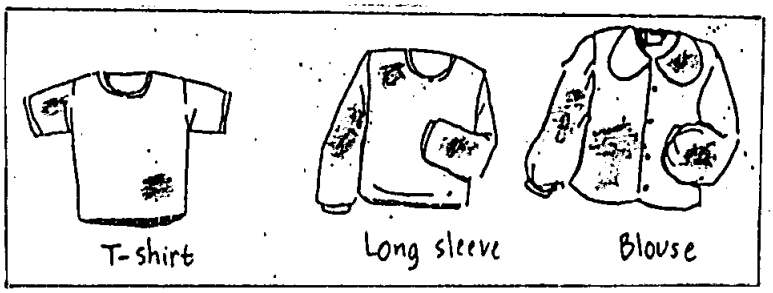
e.g :




Tommy is *the* <u>biggest</u> boy in the class . ( big ----- biggest )

b . - Two syllables which ending in –y , the –y becomes i and add –est .

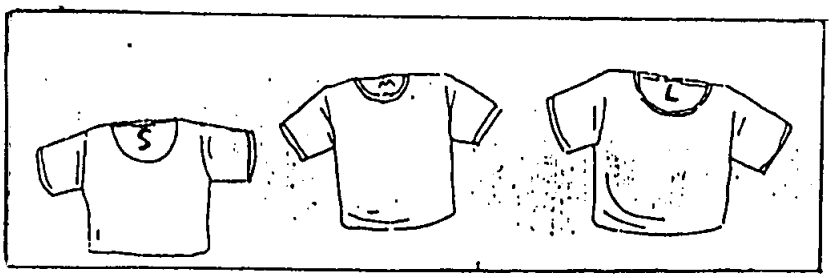
e.g :




The blouse is *the* <u>dirtiest</u> of all .

- Two syllables which ending with –e , add -st .

e.g :




The size L is *the* <u>largest</u> size in this store .

c . More than two syllables : ( Put most before the adjectives ! )

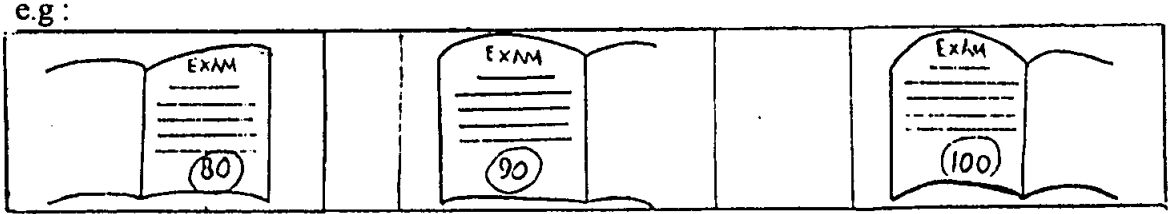
e.g :


Nany is *the* <u>most beautiful</u> girl in this office .(beautiful —— most beautiful) .

SOME SHORT ADJECTIVES HAVE IRREGULAR COMPARATIVE AND SUPERLATIVE FORMS :

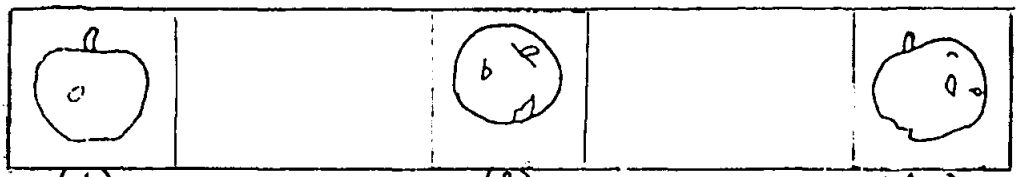
| **Positive** | **Comparative** | **Superlative** |
|---|---|---|
| Good | Better | Best |

e.g :




| | | |
|---|---|---|
| Score 80 is <u>good</u> . | Score 90 is <u>better</u> *than* 80 . | Score 100 is *the* <u>best</u> . |

| Bad | Worse | Worst |
|---|---|---|
| e.g : | | |



(A) (B) (C)

The apple A is bad .

The apple B is worse *than* the apple A .

The apple C is *the* worst .

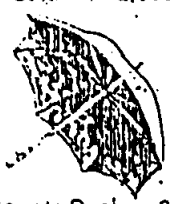
***EXERCISES :***

A. Look at the pictures and write sentences using the given adjectives !

1. ( wet )

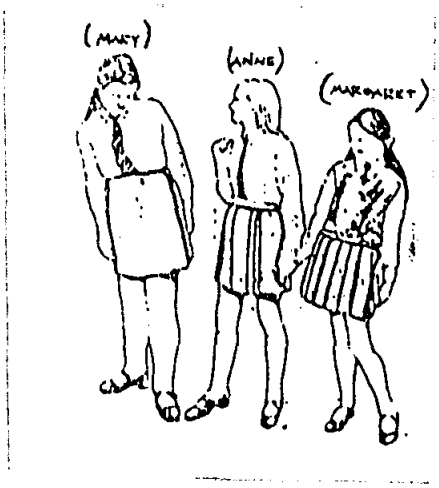
England — 750 mm rain per year

Vietnam — 2,500 mm per year

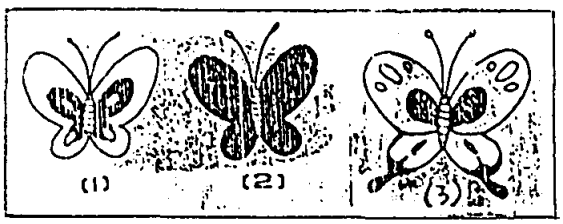


Bangla Desh — 3,000 mm rain per year

2. ( pretty )



3. ( attractive )




B. Complete each of the following statements using the suitable degrees of comparison from the adjectives given in brackets !

1 . Herlia is as ( clever ) as Dewi .

2 . The honey is sweet . The candy is sour . The honey is different ( taste ) from the candy.

3 . Doni is ( happy ) than Rio

4 . Susi is the ( thin ) girl in the class .

5 . Lion is the ( dangerous ) animal .

6 . This pencil is long and that pencil is too . This pencil is the same ( length ) as that one.

7 . Going by bus is ( hot ) than by aeroplane .

8 . My sister is ( dilligent ) than my brother .

9 . My father is the ( wise ) man in our house .

10. This book is ( good ) than that book .

*Treatment 1 ( Control group )*

**Degrees of Comparison of Adjectives**
**( tingkat perbandingan )**

Underline the adjectives below !

1. I saw a good film last night .
2. Our house is quite big .
3. Ani is ugly .
4. Their expensive car broke yesterday .

Degrees of Comparison can be distinguished into three , they are : positive , comparative , and superlative .

I . ***Positive ( tingkat setara )***

Adalah : perbandingan yang menyatakan persamaan / perbedaan dua benda .

a . Persamaan :

1 . As ... as

Pola Kalimat :

**Subject + predicate + as ... as + Subject + predicate**

e.g : My shirt is as white as yours .

2 . The same ... as

Pola Kalimat :

**Subject + predicate + the same ... as + Subject + predicate**

**Subject + predicate + the same as + Subject + predicate**

e.g : My shirt is the same colour as yours .

My shirt is the same as yours .

b . Perbedaan :

- Different from

Pola Kalimat :

**- Subject + predicate + different + Noun + from + Subject + predicate**

**- Subject + predicate + different from + Subject + predicate**

**- Subject + predicate + different**

e.g : My shirt is different in colour from yours .

My shirt is different from yours .

Our bag's colour is different .

II . ***Comparative ( tingkat lebih )***

Adalah : perbandingan antara dua benda yang menggunakan akhiran –er atau awalan more .

Pola Kalimat :

**Subject + predicate + comparative degree + than + Subject + predicate**

a . - One syllable .

e.g : The bus A is cheaper *than* the bus C . ( cheap ---- cheaper )

- One syllable which ending with a consonant and preceded with a single vowel , for examples : big , red , fat ; double the final consonant and

add – er.

e.g : Billy is bigger *than* Amir . ( big ----- bigger )

b . - Two syllables which ending in –y , the –y becomes i and add –er .

e.g : The long sleeves is dirtier *than* the T-shirt . ( dirty ----- dirtier )

- Two syllables which ending with –e , add – r .

e.g : The size M is larger *than* the size S . ( large ----- larger )

c . More than two syllables : ( Put more before the adjectives ! )

e.g : Lina looks more beautiful *than* Susi . ( beautiful ----- more beautiful )

III . ***Superlative ( tingkat paling )***

Adalah : perbandingan tiga benda / lebih yang menggunakan akhiran –est atau awalan most .

Pola Kalimat :

**Subject + predicate + the + superlative degree + complement**

a . - One syllable .

e.g : The bus A is *the* cheapest of all types . ( cheap ----- cheapest )

- One syllable which ending with a consonant and preceded with a single vowel , for examples : big , red , fat ; double the final consonant and add –est .

e.g : Tommy is *the* biggest boy in the class . ( big ----- biggest )

b . - Two syllables which ending in –y , the –y becomes i and add –est .

e.g : The blouse is *the* dirtiest of all .

- Two syllables which ending with –e , add -st .

e.g : The size L is *the* largest size in this store .

c . More than two syllables : ( Put most before the adjectives ! )

e.g : Nany is *the* most beautiful girl in this office .(beautiful ----- most beautiful) .

SOME SHORT ADJECTIVES HAVE IRREGULAR COMPARATIVE AND SUPERLATIVE FORMS :

| **Positive** | **Comparative** | **Superlative** |
|---|---|---|
| Good<br>e.g :<br>Score 80 is good . | Better<br><br>Score 90 is better *than* 80 . | Best<br><br>Score 100 is *the* best . |
| Bad<br>e.g :<br>The apple A is bad . | Worse<br><br>The apple B is worse *than* the apple C . | Worst<br><br>The apple C is *the* worst . |

***EXERCISES :***

A. I . Complete the COMPARISON TABLE BELOW !

| No | Positive | Comparative | Superlative |
|---|---|---|---|
| 1. ( wet )<br>2. ( pretty )<br>3. ( attractive ) | | | |

II . Make the comparison sentences based on the adjectives above ! You may create those sentences based on what you see on your daily lives .

B. Complete each of the following statements using the suitable degrees of comparison from the adjectives given in brackets !

1 . Herlia is as ( clever ) as Dewi

2 . The honey is sweet . The candy is sour . The honey is different ( taste ) from the

candy.

3 . Doni is ( happy ) than Rio .

4 . Susi is the ( thin ) girl in the class .

5 . Lion is the ( dangerous ) animal .

6 . This pencil is long and that pencil is too . This pencil is the same ( length ) as that one.

7 . Going by bus is ( hot ) than by aeroplane .

8 . My sister is ( dilligent ) than my brother .

9 . My father is the ( wise ) man in our house .

10. This book is ( good ) than that book .

*Treatment 2 ( Experimental group )*

**Degrees of Comparison of Adjectives**
**( tingkat perbandingan )**

Underline the adjectives below !

1. He has a happy life .
2. She looks so sad .
3. Budi is lazy .
4. My beautiful friends died yesterday .

Degrees of Comparison can be distinguished into three , they are : positive , comparative , and superlative .

I . ***Positive ( tingkat setara )***

Adalah : perbandingan yang menyatakan persamaan / perbedaan dua benda .

a . Persamaan :

1 . As ... as

Pola Kalimat :

**Subject + predicate + as ... as + Subject + predicate**

e.g :


You are as old as I am .

2 . The same ... as

Pola Kalimat :

**Subject + predicate + the same ... as + Subject + predicate**

**Subject + predicate + the same as + Subject + predicate**

e.g : You are the same age as I am .

Your age is the same as mine .

b . Perbedaan :

- Different from

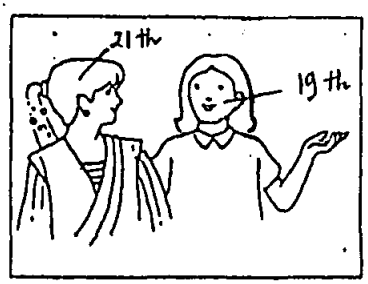
Pola Kalimat :

**- Subject + predicate + different + Noun + from + Subject + predicate**

**- Subject + predicate + different from + Subject + predicate**

**- Subject + predicate + different**

e.g :




You are different in age from I am .

Your age is different from mine .

Our age is different .

II . *Comparative ( tingkat lebih )*

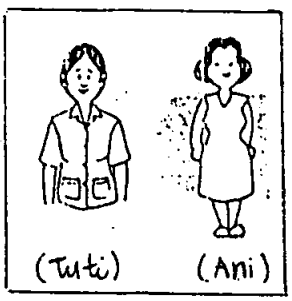
Adalah : perbandingan antara dua benda yang menggunakan akhiran –er atau awalan more .

Pola Kalimat :

**Subject + predicate + comparative degree + than + Subject + predicate**

a . - One syllable .

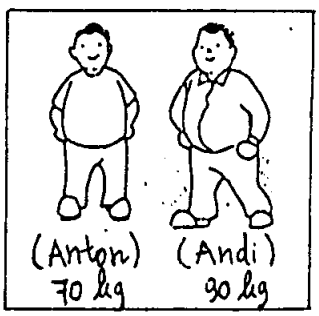
e.g :




Ani has <u>longer</u> hair *than* Tuti . ( long ----- longer )

- One syllable which ending with a consonant and preceded with a single vowel , for examples : big , red , fat ; double the final consonant and add –er .

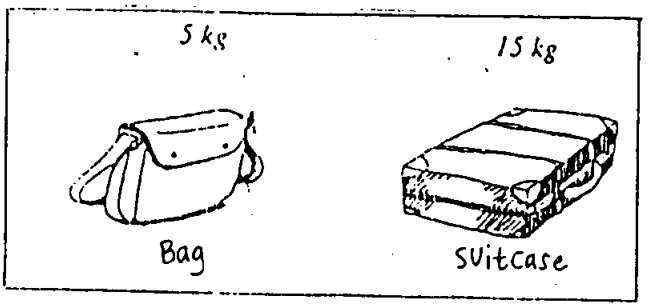
e.g :




Andi is <u>fatter</u> *than* Anton . ( fat ----- fatter )

b . - Two syllables which ending in –y , the –y becomes i and add –er .

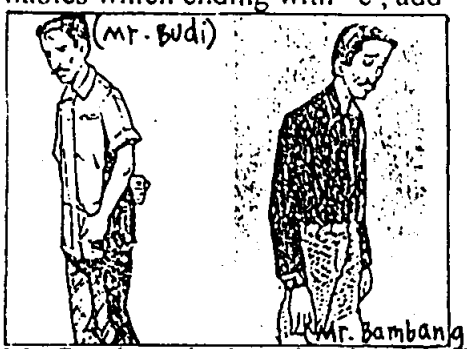
e.g :




The suitcase is heavier *than* the bag . ( heavy ----- heavier )

- Two syllables which ending with –e , add – r .

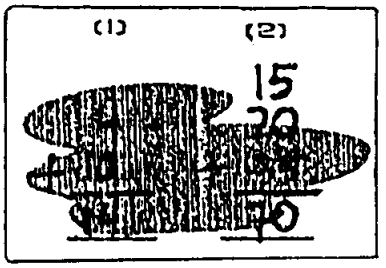
e.g :




Mr. Bambang looks paler *than* Mr. Budi . ( pale ----- paler )

c . More than two syllables : ( Put more before the adjectives ! )

e.g :




The test ( 1 ) is more difficult *than* the test ( 2 ) . ( difficult ----- more difficult )

III . ***Superlative ( tingkat paling )***

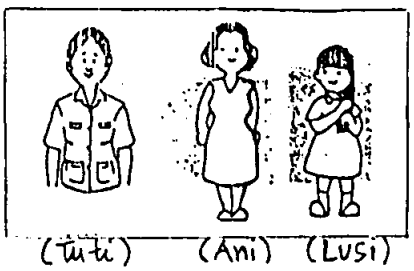
Adalah : perbandingan tiga benda / lebih yang menggunakan akhiran –est atau awalan most .

Pola Kalimat :

**Subject + predicate + the + superlative degree + complement**

a . - One syllable .

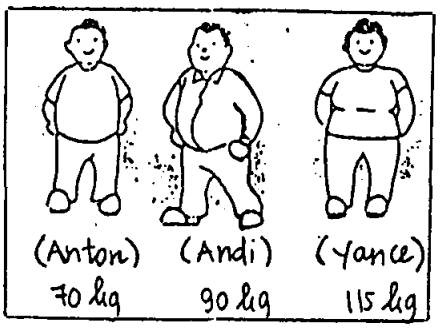
e.g :




Lusi has *the* longest hair in our house . ( long ---- longest )

- One syllable which ending with a consonant and preceded with a single vowel , for examples : big , red , fat ; double the final consonant and add – est .

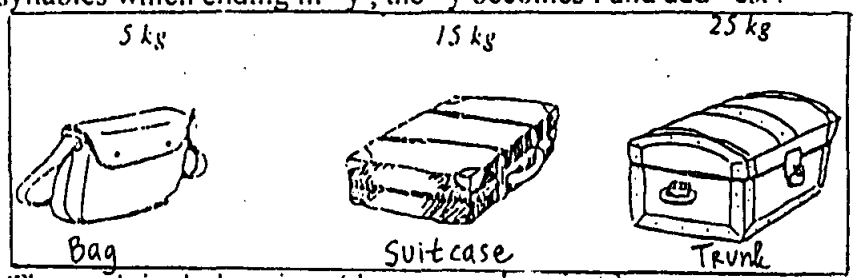
e.g :




Yance is *the* fattest girl in the class . ( fat ----- fattest )

b . - Two syllables which ending in –y , the –y becomes i and add –est .

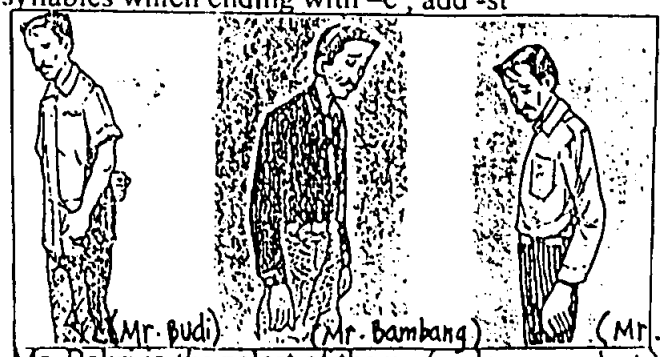
e.g :




The trunk is *the* heaviest .( heavy ----- heaviest )

- Two syllables which ending with –e , add -st

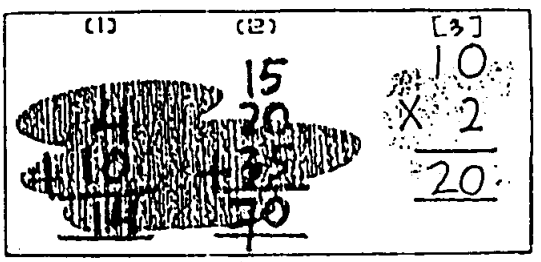
e.g :




Mr. Bakri is *the* palest of them . ( pale ----- palest )

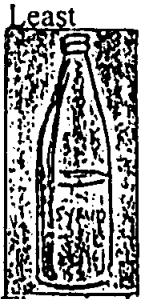
c . More than two syllables : ( Put most before the adjectives ! )

e.g :




The test ( 3 ) is *the* most difficult . ( difficult ----- most difficult ) .

SOME SHORT ADJECTIVES HAVE IRREGULAR COMPARATIVE AND SUPERLATIVE FORMS :

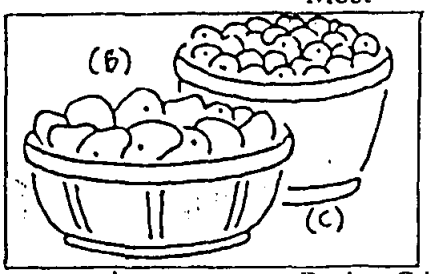
| **Positive** | **Comparative** | **Superlative** |
|---|---|---|
| Little | Less | Least |
| e.g :   |   |   |
| There is a little water in the whisky bottle . | There is less water in the gin bottle *than* whisky bottle . | There is *the* least water in the syrup bottle . |

Many

e.g :

Basket A has many apples .

More




Basket B has more apples *than* basket A .

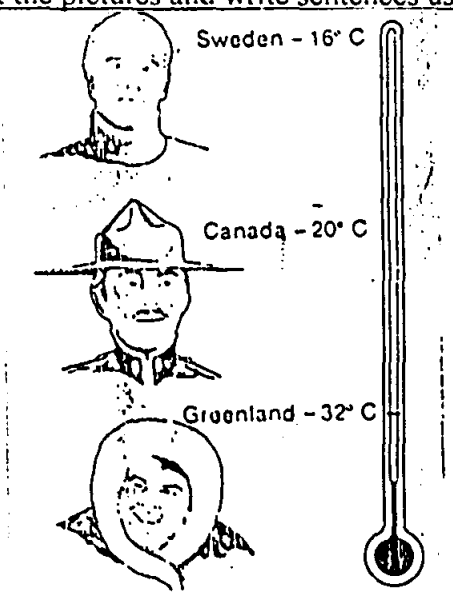
Most

Basket C has *the* most apples .

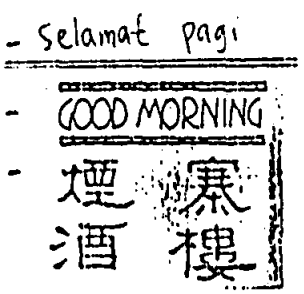
***EXERCISES :***

A. Look at the pictures and write sentences using the given adjectives !

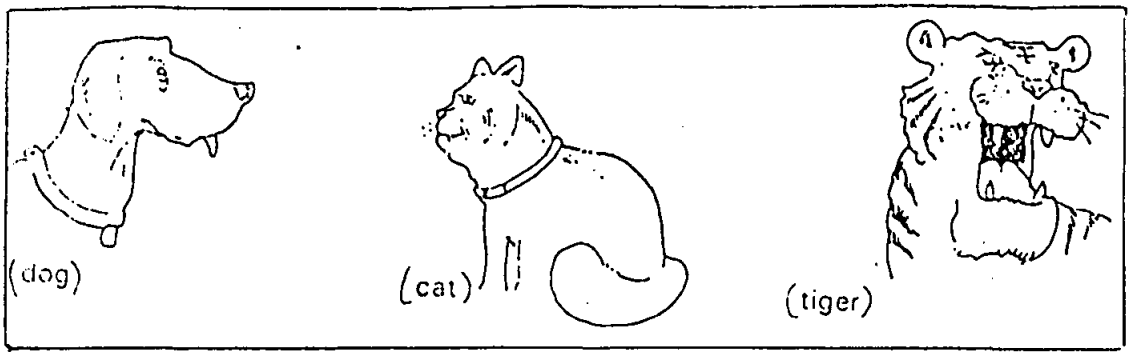
1. ( cold )




2. ( easy )



3. ( frightened )




B. Complete each of the following statements using the suitable degrees of comparison from the adjectives given in brackets !

1 . These umbrellas are reddish and those ones are too . These umbrellas are the same ( colour ) as those ones .

2 . Achmad is 170 cm tall , Ari is 150 cm tall . Achmad is ( tall ) than Ari .

3 . Bali is ( interesting ) than Malang .

4 . Budi is the ( busy ) person in the world .

5 . This condition is the ( bad ) in this month .

6 . My uncle is as ( kind ) as my father .

7 . I spoke English . She spoke Mandarin . I spoke different ( language ) from her .

8 . Nina is ( nice ) than Ani .

9 . The air ticket is the ( expensive ) of the other transportations .

10. Dolphin is the ( smart ) fish .

***Treatment 2 ( Control group )***

**Degrees of Comparison of Adjectives**
**( tingkat perbandingan )**

Underline the adjectives below !

1. He has a happy life .
2. She looks so sad .
3. Budi is lazy .
4. My beautiful friends died yesterday .

Degrees of Comparison can be distinguished into three , they are : positive , comparative , and superlative .

I . ***Positive ( tingkat setara )***

Adalah : perbandingan yang menyatakan persamaan / perbedaan dua benda .

a . Persamaan :

1 . As ... as

Pola Kalimat :

**Subject + predicate + as ... as + Subject + predicate**

e.g : You are as old as I am .

2 . The same ... as

Pola Kalimat :

**Subject + predicate + the same ... as + Subject + predicate**

**Subject + predicate + the same as + Subject + predicate**

e.g : You are the same age as I am .

Your age is the same as mine .

b . Perbedaan :

- Different from

  Pola Kalimat :

  **- Subject + predicate + different + Noun + from + Subject + predicate**

  **- Subject + predicate + different from + Subject + predicate**

  **- Subject + predicate + different**

  e.g : You are different in age from I am .

  Your age is different from mine .

  Our age is different .

II . ***Comparative ( tingkat lebih )***

Adalah : perbandingan antara dua benda yang menggunakan akhiran –er atau awalan more .

Pola Kalimat :

**Subject + predicate + comparative degree + than + Subject + predicate**

a . - One syllable .

e.g : Ani has longer hair *than* Tuti . ( long ----- longer )

- One syllable which ending with a consonant and preceded with a single vowel , for examples : big , red , fat ; double the final consonant and add –er .

e.g : Andi is fatter *than* Anton . ( fat ----- fatter )

b . - Two syllables which ending in –y , the –y becomes i and add –er .

e.g : The suitcase is heavier *than* the bag . ( heavy ----- heavier )

- Two syllables which ending with –e , add – r .

e.g : Mr. Bambang looks paler *than* Mr. Budi . ( pale ----- paler )

c . More than two syllables : ( Put more before the adjectives ! )

e.g : The test ( 1 ) is more difficult *than* the test ( 2 ) . ( difficult ----- more difficult )

III . ***Superlative ( tingkat paling )***

Adalah : perbandingan tiga benda / lebih yang menggunakan akhiran –est atau awalan most .

Pola Kalimat :

**Subject + predicate + the + superlative degree + complement**

a . - One syllable .

e.g : Lusi has *the* longest hair in our house . ( long ----- longest )

- One syllable which ending with a consonant and preceded with a single vowel , for examples : big , red , fat ; double the final consonant and add – est .

e.g : Yance is *the* fattest girl in the class . ( fat ----- fattest )

b . - Two syllables which ending in –y , the –y becomes i and add –est .

e.g : The trunk is *the* heaviest .( heavy ----- heaviest )

- Two syllables which ending with –e , add -st .

e.g : Mr. Bakri is *the* palest of them . ( pale ----- palest )

c . More than two syllables : ( Put most before the adjectives ! )

e.g : The test ( 3 ) is *the* most difficult . ( difficult ----- most difficult ) .

SOME SHORT ADJECTIVES HAVE IRREGULAR COMPARATIVE AND SUPERLATIVE FORMS :

| **Positive** | **Comparative** | **Superlative** |
|---|---|---|
| Little<br>e.g :<br>There is a little water in the whisky bottle . | Less<br><br>There is less water in the gin bottle *than* whisky bottle . | Least<br><br>There is *the* least water in the syrup bottle . |
| Many<br>e.g :<br>Basket A has many apples . | More<br><br>Basket B has more apples *than* basket A . | Most<br><br>Basket C has *the* most apples . |

***EXERCISES :***

A. I . Complete the COMPARISON TABLE BELOW !

| No | Positive | Comparative | Superlative |
|---|---|---|---|
| 1. ( cold ) | | | |
| 2. ( easy ) | | | |
| 3. ( frightened ) | | | |

II . Make the comparison sentences based on the adjectives above . You may create those sentences based on what you see on your daily lives !

B. Complete each of the following statements using the suitable degrees of comparison from the adjectives given in brackets !

1 . These umbrellas are reddish and those ones are too . These umbrellas are the same ( colour ) as those ones .

2 . Achmad is 170 cm tall , Ari is 150 cm tall . Achmad is ( tall ) than Ari .

3 . Bali is ( interesting ) than Malang .

4 . Budi is the ( busy ) person in the world .

5 . This condition is the ( bad ) in this month .

6 . My uncle is as ( kind ) as my father .

7 . I spoke English . She spoke Mandarin . I spoke different ( language ) from her .

8 . Nina is ( nice ) than Ani .

9 . The air ticket is the ( expensive ) of the other transportations .

10. Dolphin is the ( smart ) fish .

***Treatment 3 ( Experimental group )***

**Degrees of Comparison of Adjectives**
**( tingkat perbandingan )**

Underline the adjectives below !

1. What a wonderful life ?
2. He is very fat .
3. Ari is funny .
4. Our complicated problem had solved yesterday .

Degrees of Comparison can be distinguished into three , they are : positive , comparative , and superlative .

I . ***Positive ( tingkat setara )***

Adalah : perbandingan yang menyatakan persamaan / perbedaan dua benda .

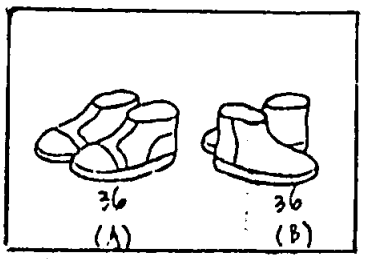
a . Persamaan :

1 . As ... as

Pola Kalimat :

**Subject + predicate + as ... as + Subject + predicate**

e.g :




My shoes is as small as yours .

2 . The same ... as

Pola Kalimat :

**Subject + predicate + the same ... as + Subject + predicate**

**Subject + predicate + the same as + Subject + predicate**

e.g : My shoes is <u>the same size as</u> yours .

My shoes is <u>the same as</u> yours .

b . Perbedaan :

- Different from

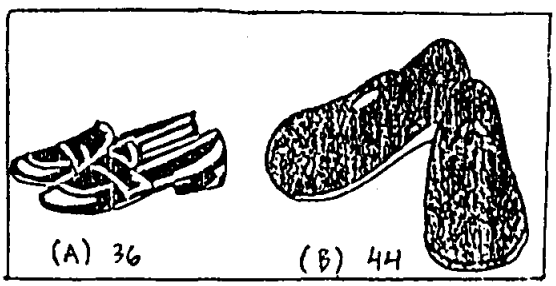
Pola Kalimat :

**- Subject + predicate + different + Noun + from + Subject + predicate**

**- Subject + predicate + different from + Subject + predicate**

**- Subject + predicate + different**

e.g :




My shoes is <u>different</u> in size <u>from</u> yours .

My shoes' size is <u>different from</u> yours .

Our shoes' size is <u>different</u> .

II . *Comparative ( tingkat lebih )*

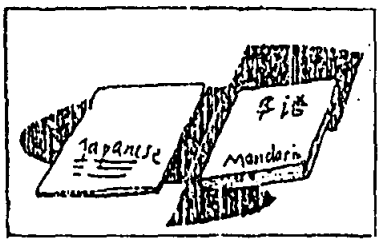
Adalah : perbandingan antara dua benda yang menggunakan akhiran –er atau awalan more .

Pola Kalimat :

**Subject + predicate + comparative degree + than + Subject + predicate**

a . - One syllable .

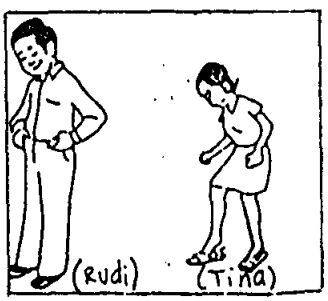
e.g :




The Mandarin book is thicker *than* the Japanese book . (thick ----- thicker)

- One syllable which ending with a consonant and preceded with a single vowel, for examples : big , red , fat ; double the final consonant and add –er .

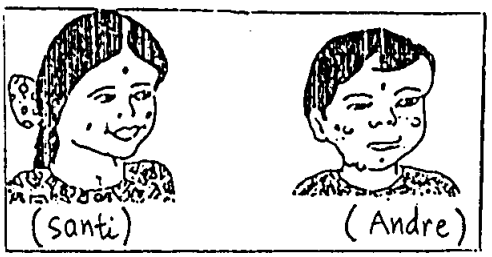
e.g :




Tina is thinner *than* Rudi . ( thin ----- thinner )

b . - Two syllables which ending in –y , the –y becomes i and add –er .

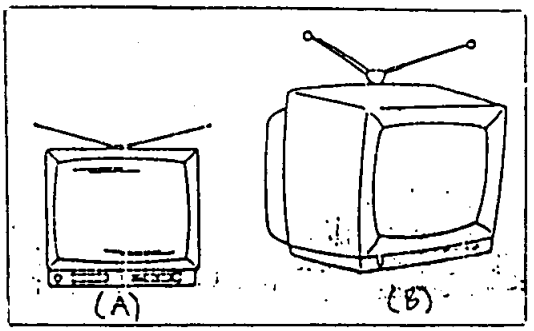
e.g :




Andre is uglier *than* Santi . ( ugly ----- uglier )

- Two syllables which ending with –e , add – r .

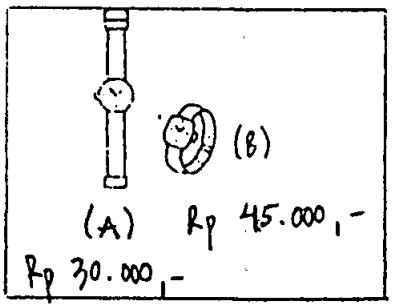
e.g :




The TV B is wider *than* the TV A . ( wide ----- wider )

c . More than two syllables : ( Put more before the adjectives ! )

e.g :




The wrist-watch B is more expensive *than* the wrist-watch A .

(expensive ----- more expensive )

III . ***Superlative ( tingkat paling )***

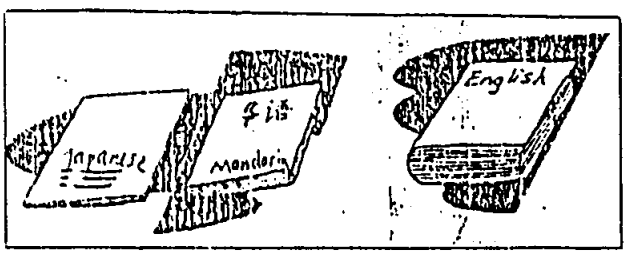
Adalah : perbandingan tiga benda / lebih yang menggunakan akhiran –est atau awalan most .

Pola Kalimat :

**Subject + predicate + the + superlative degree + complement**

a . - One syllable .

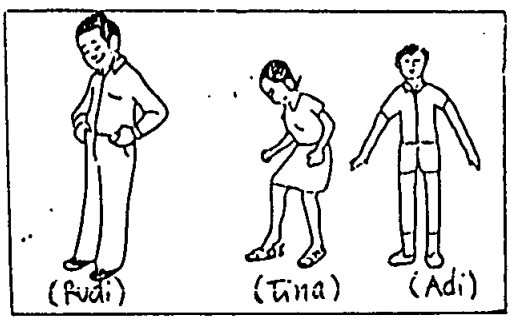
e.g :




The English book is *the* tickest . ( thick ----- thickest )

- One syllable which ending with a consonant and preceded with a single vowel , for examples : big , red , fat ; double the final consonant and add –est .

e.g :




Adi is *the* thinnest in the house . ( thin ----- thinnest )

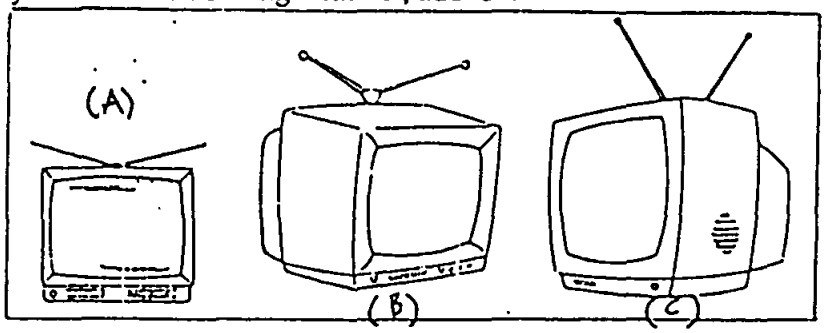
b . - Two syllables which ending in –y , the –y becomes i and add –est .

e.g :


Robby is *the* ugliest . ( ugly ----- ugliest )

- Two syllables which ending with –e , add -st .

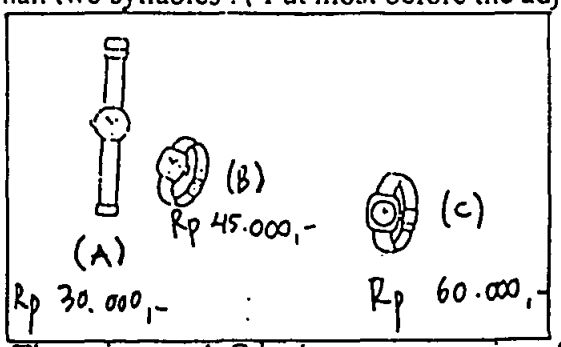
e.g :




The TV C is *the* widest . ( wide ----- widest )

c . More than two syllables : ( Put most before the adjectives ! )

e.g :



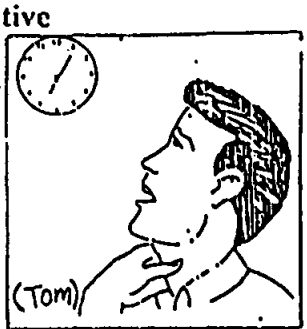

The wrist-watch C is *the* most expensive of all . ( expensive ----- most expensive )

SOME SHORT ADJECTIVES HAVE IRREGULAR COMPARATIVE AND SUPERLATIVE FORMS :

**Positive**

Late

e.g :




The lesson begins at 7.00 O'clock .

( 7.05 ) Tom is late today .

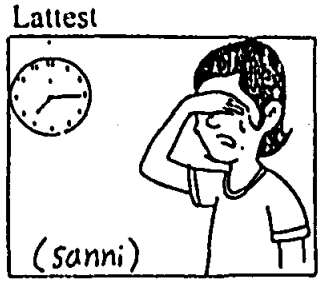
**Comparative**

Latter


( 7.10 ) Jim is latter *than* Tom .

**Superlative**

Lattest




( 7.15 ) Sanni is *the* lattest .

| Far ( jarak ) | Farther | Farthest |
|---|---|---|

e.g :

| 500 Km | 1000 Km | 1500 Km | |
|---|---|---|---|
| SURABAYA ---------- | SIDOARJO ---------- | TRETES ---------- | MALANG |

Surabaya –Sidoarjo is far .

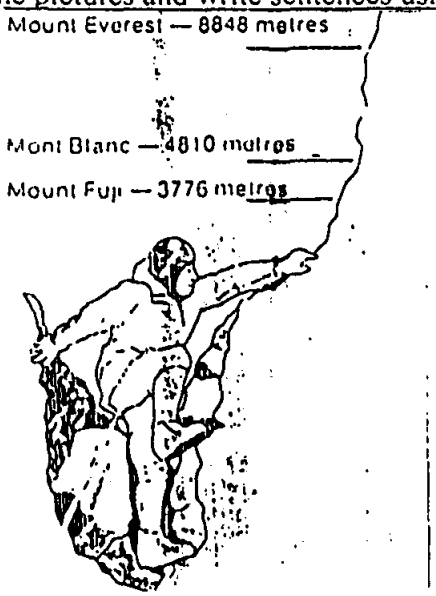
Surabaya-Tretes is farther . *than* Surabaya-Sidoarjo .

Surabaya-Malang is *the* farthest .

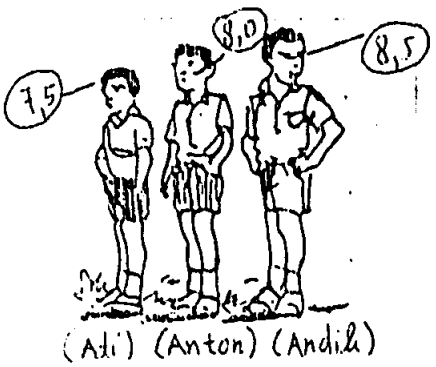
***EXERCISES :***

A. Look at the pictures and write sentences using the given adjectives !

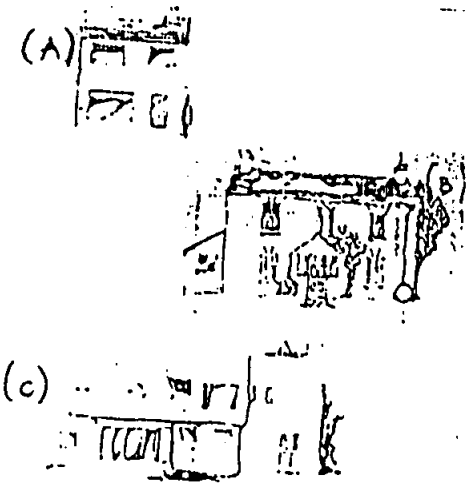
1. ( high )




2. ( clever )



3. ( interesting )



B. Complete each of the following statements using the suitable degree of comparison from the adjectives given in brackets !

1 . His pencil is as ( sharp ) as hers .

2 . My pen is long . Your pen is short . My pen is different ( length ) from your pen .

3 . Ani is ( lazy ) than Nina .

4 . Giraffe is the ( tall ) animal .

5 . To foreign tourists , ' Kuta ' Beach in Bali is the ( popular ) .

6 . My face is oval and your face is too . My face is the same ( shape ) as yours .

7 . Syrup tastes ( sweet ) than honey .

8 . An airplane is ( comfortable ) than a train .

9 . He looks the ( happy ) person in the world .

10. Lina ate ( little ) food than Lani .

***Treatment 3 ( control group )***

**Degrees of Comparison of Adjectives**
**( tingkat perbandingan )**

Underline the adjectives below !

1. What a wonderful life ?
2. He is very fat .
3. Ari is funny .
4. Our complicated problem had solved yesterday .

Degrees of Comparison can be distinguished into three , they are : positive , comparative , and superlative .

I . ***Positive ( tingkat setara )***

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a . Persamaan :

1 . As ... as

Pola Kalimat :

**Subject + predicate + as ... as + Subject + predicate**

e.g : My shoes is as small as yours .

2 . The same ... as

Pola Kalimat :

**Subject + predicate + the same ... as + Subject + predicate**

**Subject + predicate + the same as + Subject + predicate**

e.g : My shoes is the same size as yours .

My shoes is the same as yours .

b . Perbedaan :

- Different from

Pola Kalimat :

**- Subject + predicate + different + Noun + from + Subject + predicate**

**- Subject + predicate + different from + Subject + predicate**

**- Subject + predicate + different**

e.g : My shoes is different in size from yours .

My shoes' size is different from yours .

Our shoes' size is different .

II . ***Comparative ( tingkat lebih )***

Adalah : perbandingan antara dua benda yang menggunakan akhiran –er atau awalan more .

Pola Kalimat :

**Subject + predicate + comparative degree + than + Subject + predicate**

a . - One syllable .

e.g : The Mandarin book is thicker *than* the Japanese book . (thick ---- thicker)

- One syllable which ending with a consonant and preceded with a single vowel, for examples : big , red , fat ; double the final consonant and add –er .

e.g : Tina is thinner *than* Rudi . ( thin ----- thinner )

b . - Two syllables which ending in –y , the –y becomes i and add –er .

e.g : Andre is uglier *than* Santi . ( ugly —— uglier )

- Two syllables which ending with –e , add – r .

e.g : The TV B is wider *than* the TV A . ( wide ----- wider )

c . More than two syllables : ( Put more before the adjectives ! )

e.g : The wrist-watch B is more expensive *than* the wrist-watch A .

(expensive ----- more expensive )

III . ***Superlative ( tingkat paling )***

Adalah : perbandingan tiga benda / lebih yang menggunakan akhiran –est atau awalan most .

Pola Kalimat :

**Subject + predicate + the + superlative degree + complement**

a . - One syllable .

e.g : The English book is *the* tickest . ( thick —— thickest )

- One syllable which ending with a consonant and preceded with a single vowel , for examples : big , red , fat ; double the final consonant and add –est .

e.g : Adi is *the* thinnest in the house . ( thin —— thinnest )

b . - Two syllables which ending in –y , the –y becomes i and add –est .

e.g : Robby is *the* ugliest . ( ugly ----- ugliest )

- Two syllables which ending with –e , add -st .

e.g : The TV C is *the* widest . ( wide ----- widest )

c . More than two syllables : ( Put most before the adjectives ! )

e.g : The wrist-watch C is *the* most expensive of all . ( expensive ----- most expensive )

SOME SHORT ADJECTIVES HAVE IRREGULAR COMPARATIVE AND SUPERLATIVE FORMS :

| **Positive** | **Comparative** | **Superlative** |
|---|---|---|
| Late<br>e.g :<br>The lesson begins at 7.00 O'clock .<br>( 7.05 ) Tom is late today . | Latter<br>( 7.10 ) Jim is latter *than* Tom . | Lattest<br>( 7.15 ) Sanni is *the* lattest . |
| Far ( jarak )<br>e.g :<br>Surabaya –Sidoarjo is far . | Farther<br>Surabaya-Tretes is farther . *than* Surabaya-Sidoarjo . | Farthest<br>Surabaya-Malang is *the* farthest . |

***EXERCISES :***

*A.* I . Complete the COMPARISON TABLE BELOW !

| No | Positive | Comparative | Superlative |
|---|---|---|---|
| 1. ( high ) | | | |
| 2. ( clever ) | | | |
| 3. ( interesting ) | | | |

II . Make the comparison sentences based on the adjectives above ! You may create those sentences based on what you see on your daily lives .

B. Complete each of the following statements using the suitable degree of comparison from the adjectives given in brackets !

1 . His pencil is as ( sharp ) as hers .

2 . My pen is long . Your pen is short . My pen is different ( length ) from your pen .

3 . Ani is ( lazy ) than Nina .

4 . Giraffe is the ( tall ) animal .

5 . To foreign tourists , ' Kuta ' Beach in Bali is the ( popular ) .

6 . My face is oval and your face is too . My face is the same ( shape ) as yours .

7 . Syrup tastes ( sweet ) than honey .

8 . An airplane is ( comfortable ) than a train .

9 . He looks the ( happy ) person in the world .

10. Lina ate ( little ) food than Lani .

I . Complete each of the following statements using the suitable degrees of comparison from the adjectives given in brackets !

1 . This pen is as ( expensive ) as that one .

2 . Town is ( small ) than city .

3 . And what is the ( long ) river in the world ?

4 . She is the same ( intelligent ) as the genius .

5 . My father is ( sad ) than mother when they heard the bad news .

6 . Tino's book is the ( thin ) of all .

7 . My book is the same ( colour ) as yours .

8 . A . 10 + 10 + 5 = 25 .
B . 10 + 10 = 20 .
B is ( easy ) than A .

9 . Kursa eats two plates of rice everyday . Gembul eats three plates of rice and Komat eats four plates . So Kamat is the ( greedy ) of all .

10. His shirt is different in ( size ) from hers .

11. That lake is ( wide ) than this lake .

12. Farida is the ( nice ) girl in my class .

13. Travelling abroad is much ( interesting ) than just staying at home .

14. What is the ( difficult ) subject , do you think ?

15. The plane flies fast and the helicopter flies fast too .
The plane flies as ( fast ) as the helicopter .

16. This is the ( complicated ) formula that I've ever seen .

17. Put ( much ) sugar in my tea , please .

18. The reporter wrote the ( good ) report to his boss .

19. The boy had a ( bad ) headache than his friend .

20. Mr. Robert is the ( late ) person comes in this meeting .

II . Give a cross ( X ) to show the right choice !

1 . Nanik is diligent , and her sister is ... her .
   a. the more diligent .
   b. the most diligent .
   c . more diligent .
   d. as diligent as .

2 . This book costs Rp. 2500,- . That book costs Rp. 5000,- . This book is different in ... from that book .
   a. colour .
   b. price .
   c. page .
   d. title .

3 . Jakarta is ... than Yogyakarta .
   a. large .
   b. largest .
   c. the largest .
   d. larger .

4 . It is 120 km from Bandung to Bogor , it is 180 km from Bandung to Jakarta , and it's from Bandung to Cianjur is only 60 km . From the information above , we know that Bandung – Bogor is ... than Bandung – Cianjur .
   a. far .
   b. farthest .
   c. farther .
   d. further .

5 . For my father singing is the ... among other his hobbies .
   a. enjoyable .
   b. most enjoyable .
   c. more enjoyable .
   d. as enjoyable as .

6 . Tini is 48 kg . Tina is 48 kg . Tini is the same ... as Tina .
   a. age .
   b. width .
   c. weight .
   d. height .

7 . This ruler is thirty cm but that ruler is twenty five cm . This ruler is different in ... from that one .
   a. height .
   b. length .
   c. weight .
   d. width .

8 . The white blouse costs Rp. 11.000,- , the red blouse costs Rp. 8.000,- and the yellow one costs Rp. 10.000,- .
   a. The yellow blouse is more expensive than the white one .
   b. The white blouse is more expensive than the yellow one .
   c. The yellow blouse is cheaper than the red one .
   d. The red blouse is the most expensive among them .

9 . Robert is ... student in my class .
   a. fat .
   b. the fattest .
   c. fatter .
   d. the most fattest .

10. Ina had three minutes to finish the test , Didi had two minutes and Dona had only one minute .
   a. Didi had less time than Dona .
   b. Ina had the least .
   c. Ina had less time than Didi .
   d. Dona had the least .

***KEY ANSWERS :***

I.1. expensive
2. smaller
3. longest
4. intelligent
5. sadder
6. thinnest
7. colour
8. easier
9. greediest
10. size
11. wider
12. nicest
13. more interesting
14. most difficult
15. fast
16. most complicated
17. more
18. best
19. worse
20. lattest

II.1. d
2. b
3. d
4. c
5. b
6. c
7. b
8. b
9. b
10. d

## Calculation For Two Means Test

| NO. | xA | x²A | xB | x²B |
|---|---|---|---|---|
| 1 | 4.4 | 19.36 | 2.7 | 7.29 |
| 2 | 5.6 | 31.36 | 3.5 | 12.25 |
| 3 | 8.5 | 72.25 | 2.3 | 5.29 |
| 4 | 7.3 | 53.29 | 5.5 | 30.25 |
| 5 | 2.6 | 6.76 | 4.4 | 19.36 |
| 6 | 5.0 | 25.00 | 5.1 | 26.01 |
| 7 | 3.3 | 10.89 | 6.3 | 39.69 |
| 8 | 4.7 | 22.09 | 3.1 | 9.61 |
| 9 | 3.4 | 11.56 | 4.4 | 19.36 |
| 10 | 4.7 | 22.09 | 6.4 | 40.96 |
| 11 | 4.0 | 16.00 | 2.3 | 5.29 |
| 12 | 1.6 | 2.56 | 4.1 | 16.81 |
| 13 | 2.4 | 5.76 | 7.0 | 49.00 |
| 14 | 5.1 | 26.01 | 4.5 | 20.25 |
| 15 | 3.2 | 10.24 | 3.7 | 13.69 |
| 16 | 3.3 | 10.89 | 5.2 | 27.04 |
| 17 | 3.8 | 14.44 | 4.0 | 16.00 |
| 18 | 5.8 | 33.64 | 1.6 | 2.56 |
| 19 | 3.8 | 14.44 | 5.8 | 33.64 |
| 20 | 4.6 | 21.16 | 8.6 | 73.96 |
| 21 | 2.1 | 4.41 | 5.5 | 30.25 |
| 22 | 3.4 | 11.56 | 2.9 | 8.41 |
| 23 | 7.1 | 50.41 | 2.8 | 7.84 |
| 24 | 3.5 | 12.25 | 5.2 | 27.04 |
| 25 | 2.2 | 4.84 | 2.0 | 4.00 |
| 26 | 2.6 | 6.76 | 7.3 | 53.29 |
| 27 | 2.8 | 7.84 | 6.9 | 47.61 |
| 28 | 8.7 | 75.69 | 2.8 | 7.84 |
| 29 | 2.4 | 5.76 | 6.1 | 37.21 |
| 30 | 2.2 | 4.84 | 5.3 | 28.09 |
| 31 | 2.2 | 4.84 | 5.9 | 34.81 |
| 32 | 6.0 | 36.00 | 3.5 | 12.25 |
| 33 | 5.9 | 34.81 | 3.1 | 9.61 |
| 34 | 2.8 | 7.84 | 2.8 | 7.84 |
| 35 | 4.3 | 18.49 | 5.7 | 32.49 |
| 36 | 3.4 | 11.56 | 7.3 | 53.29 |
| 37 | 5.6 | 31.36 | 4.4 | 19.36 |
| 38 | 3.4 | 11.56 | 2.0 | 4.00 |
| 39 | 8.8 | 77.44 | 4.4 | 19.36 |
| TOTAL | 166.5 | 848.05 | 176.4 | 912.90 |
| n | 39 | - | 39 | - |
| Mean | 4.269230 | | 4.523076 | |
| SD | 1.900298 | | 1.739852 | |

Test of Hypothesis :

1 . Ho : mA = mB , there is no significant difference between group A and group B .
Ha : mA # mB , there is significant difference between group A and group B .

2 . t-test , where dk. = nA + nB – 2 = 76
t ( . 05/2 ) = 2000

3 . Calculation for t-observation ( to ) :

A : class IIA

$$\bar{x} = \frac{\Sigma x}{n} = 4.269230 \quad ; \quad n = 39$$

$$s = \sqrt{\frac{n\{x^2 - (\{x)^2}{n\ (n-1)}} = 1.900298$$

B : class IIB

$$\bar{x} = \frac{\Sigma x}{n} = 4.523076 \quad ; \quad n = 39$$

$$s = \sqrt{\frac{n\{x^2 - (\{x)^2}{n\ (n-1)}} = 1.739852$$

$$to = \frac{\bar{x}A - \bar{x}B}{\sqrt{\frac{(nA-1)s^2A + (nB-1)s^2B}{nA + nB - 2}\left(\frac{1}{nA} + \frac{1}{nB}\right)}} = -0.615$$

4. CONCLUSION :

Because / t observation / = 0.615286 < t ( .05 / 2 ) so Ho is accepted .
Hence , we can conclude that there is no significant difference between group A and group B .

## Calculation For Two Means Test

| NO. | xA | $x^2A$ | xC | $x^2C$ |
|---|---|---|---|---|
| 1 | 4.4 | 19.36 | 2.6 | 6.76 |
| 2 | 5.6 | 31.36 | 3.4 | 11.56 |
| 3 | 8.5 | 72.25 | 5.0 | 25.00 |
| 4 | 7.3 | 53.29 | 4.8 | 23.04 |
| 5 | 2.6 | 6.76 | 6.3 | 39.69 |
| 6 | 5.0 | 25.00 | 6.7 | 44.89 |
| 7 | 3.3 | 10.89 | 7.7 | 59.29 |
| 8 | 4.7 | 22.09 | 4.4 | 19.36 |
| 9 | 3.4 | 11.56 | 5.4 | 29.16 |
| 10 | 4.7 | 22.09 | 3.0 | 9.00 |
| 11 | 4.0 | 16.00 | 4.9 | 24.01 |
| 12 | 1.6 | 2.56 | 3.4 | 11.56 |
| 13 | 2.4 | 5.76 | 3.2 | 10.24 |
| 14 | 5.1 | 26.01 | 5.0 | 25.00 |
| 15 | 3.2 | 10.24 | 6.5 | 42.25 |
| 16 | 3.3 | 10.89 | 5.3 | 28.09 |
| 17 | 3.8 | 14.44 | 3.4 | 11.56 |
| 18 | 5.8 | 33.64 | 2.3 | 5.29 |
| 19 | 3.8 | 14.44 | 5.1 | 26.01 |
| 20 | 4.6 | 21.16 | 4.0 | 16.00 |
| 21 | 2.1 | 4.41 | 4.7 | 22.09 |
| 22 | 3.4 | 11.56 | 2.6 | 6.76 |
| 23 | 7.1 | 50.41 | 6.0 | 36.00 |
| 24 | 3.5 | 12.25 | 3.4 | 11.56 |
| 25 | 2.2 | 4.84 | 4.2 | 17.64 |
| 26 | 2.6 | 6.76 | 6.9 | 47.61 |
| 27 | 2.8 | 7.84 | 4.8 | 23.04 |
| 28 | 8.7 | 75.69 | 4.6 | 21.16 |
| 29 | 2.4 | 5.76 | 7.0 | 49.00 |
| 30 | 2.2 | 4.84 | 2.7 | 7.29 |
| 31 | 2.2 | 4.84 | 4.4 | 19.36 |
| 32 | 6.0 | 36.00 | 4.4 | 19.36 |
| 33 | 5.9 | 34.81 | 2.8 | 7.84 |
| 34 | 2.8 | 7.84 | 4.2 | 17.64 |
| 35 | 4.3 | 18.49 | 1.0 | 1.00 |
| 36 | 3.4 | 11.56 | 3.9 | 15.21 |
| 37 | 5.6 | 31.36 | 8.3 | 68.89 |
| 38 | 3.4 | 11.56 | 2.5 | 6.25 |
| 39 | 8.8 | 77.44 | 4.1 | 16.81 |
| TOTAL | 166.5 | 848.05 | 174.9 | 882.27 |
| n | 39 | - | 39 | - |
| Mean | 4.269230 | | 4.484615 | |
| SD | 1.900298 | | 1.605178 | |

Test of Hypothesis :

1 . Ho : mA = mC , there is no significant difference between group A and group C .
Ha : mA # mC , there is significant difference between group A and group C .

2 . t-test , where dk. = nA + nC – 2 = 76
t ( . 05/2 ) = 2000

3 . Calculation for t-observation ( to ) :

A : Class IIA

$$\bar{x} = \frac{\Sigma x}{n} = 4.269230 \quad ; \quad n = 39$$

$$s = \sqrt{\frac{n\{x^2 - (\{x)^2}{n\,(n-1)}} = 1.900298$$

C : Class IIC

$$\bar{x} = \frac{\Sigma x}{n} = 4.484615 \quad ; \quad n = 39$$

$$s = \sqrt{\frac{n\{x^2 - (\{x)^2}{n\,(n-1)}} = 1.605178$$

$$to = \frac{\bar{x}A - \bar{x}C}{\sqrt{\frac{(nA-1)s^2A + (nC-1)s^2C}{nA + nC - 2}\left(\frac{1}{nA} + \frac{1}{nC}\right)}} = -0.541$$

4. CONCLUSION :

Because / t observation / = 0.540730 < t ( .05 / 2 ) so Ho is accepted .
Hence , we can conclude that there is no significant difference between group A and group C .

## Calculation For Two Means Test

| NO. | xB | $x^2B$ | xC | $x^2C$ |
|---|---|---|---|---|
| 1 | 2.7 | 7.29 | 2.6 | 6.76 |
| 2 | 3.5 | 12.25 | 3.4 | 11.56 |
| 3 | 2.3 | 5.29 | 5.0 | 25.00 |
| 4 | 5.5 | 30.25 | 4.8 | 23.04 |
| 5 | 4.4 | 19.36 | 6.3 | 39.69 |
| 6 | 5.1 | 26.01 | 6.7 | 44.89 |
| 7 | 6.3 | 39.69 | 7.7 | 59.29 |
| 8 | 3.1 | 9.61 | 4.4 | 19.36 |
| 9 | 4.4 | 19.36 | 5.4 | 29.16 |
| 10 | 6.4 | 40.96 | 3.0 | 9.00 |
| 11 | 2.3 | 5.29 | 4.9 | 24.01 |
| 12 | 4.1 | 16.81 | 3.4 | 11.56 |
| 13 | 7.0 | 49.00 | 3.2 | 10.24 |
| 14 | 4.5 | 20.25 | 5.0 | 25.00 |
| 15 | 3.7 | 13.69 | 6.5 | 42.25 |
| 16 | 5.2 | 27.04 | 5.3 | 28.09 |
| 17 | 4.0 | 16.00 | 3.4 | 11.56 |
| 18 | 1.6 | 2.56 | 2.3 | 5.29 |
| 19 | 5.8 | 33.64 | 5.1 | 26.01 |
| 20 | 8.6 | 73.96 | 4.0 | 16.00 |
| 21 | 5.5 | 30.25 | 4.7 | 22.09 |
| 22 | 2.9 | 8.41 | 2.6 | 6.76 |
| 23 | 2.8 | 7.84 | 6.0 | 36.00 |
| 24 | 5.2 | 27.04 | 3.4 | 11.56 |
| 25 | 2.0 | 4.00 | 4.2 | 17.64 |
| 26 | 7.3 | 53.29 | 6.9 | 47.61 |
| 27 | 6.9 | 47.61 | 4.8 | 23.04 |
| 28 | 2.8 | 7.84 | 4.6 | 21.16 |
| 29 | 6.1 | 37.21 | 7.0 | 49.00 |
| 30 | 5.3 | 28.09 | 2.7 | 7.29 |
| 31 | 5.9 | 34.81 | 4.4 | 19.36 |
| 32 | 3.5 | 12.25 | 4.4 | 19.36 |
| 33 | 3.1 | 9.61 | 2.8 | 7.84 |
| 34 | 2.8 | 7.84 | 4.2 | 17.64 |
| 35 | 5.7 | 32.49 | 1.0 | 1.00 |
| 36 | 7.3 | 53.29 | 3.9 | 15.21 |
| 37 | 4.4 | 19.36 | 8.3 | 68.89 |
| 38 | 2.0 | 4.00 | 2.5 | 6.25 |
| 39 | 4.4 | 19.36 | 4.1 | 16.81 |
| TOTAL | 176.4 | 912.90 | 174.9 | 882.27 |
| n | 39 | - | 39 | - |
| Mean | 4.523076 | | 4.484615 | |
| SD | 1.739852 | | 1.605178 | |

Test of Hypothesis :

1 . Ho : mB = mC , there is no significant difference between group B and group C .
Ha : mB # mC , there is significant difference between group B and group C .

2 . t-test , where dk. = nB + nC – 2 = 76
t ( . 05/2 ) = 2000

3 . Calculation for t-observation ( to ) :

B : class IIB

$$\bar{x} = \frac{\Sigma x}{n} = 4.523076 \quad ; \quad n = 39$$

$$s = \sqrt{\frac{n\Sigma x^2 - (\Sigma x)^2}{n\,(n-1)}} = 1.739852$$

C : class IIC

$$\bar{x} = \frac{\Sigma x}{n} = 4.484615 \quad ; \quad n = 39$$

$$s = \sqrt{\frac{n\Sigma x^2 - (\Sigma x)^2}{n\,(n-1)}} = 1.605178$$

$$to = \frac{\bar{x}B - \bar{x}C}{\sqrt{\frac{(nB-1)s^2B + (nC-1)s^2C}{nB + nC - 2}\left(\frac{1}{nB} + \frac{1}{nC}\right)}} = 0.101$$

4. CONCLUSION :
Because / t observation / = 0.101466 < t ( .05 / 2 ) so Ho is accepted .
Hence , we can conclude that there is no significant difference between group B and group C .

# The Try-out Results

(class IIB)

| SUBJECT NUMBER | ITEM | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| 2 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 |
| 3 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 4 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| 5 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 6 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 |
| 7 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 8 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 9 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| 10 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 |
| 11 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 12 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 13 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 14 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| 15 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 |
| 16 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| 17 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 |
| 18 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 |
| 19 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| 20 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 21 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| 22 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| 23 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 24 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 |
| 25 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 26 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 27 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |
| 28 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 |
| 29 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| 30 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 |
| 31 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| 32 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 33 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |
| 34 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 |
| 35 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 36 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 37 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 |
| 38 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |

| 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | TOTAL SCORE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 23 |
| 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 18 |
| 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 9 |
| 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 22 |
| 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 21 |
| 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 20 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 23 |
| 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 11 |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 20 |
| 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 24 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 25 |
| 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 10 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 28 |
| 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 19 |
| 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 18 |
| 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 20 |
| 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 20 |
| 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 17 |
| 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 20 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 29 |
| 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 18 |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 17 |
| 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 8 |
| 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 13 |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 12 |
| 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 27 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 25 |
| 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 19 |
| 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 20 |
| 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 26 |
| 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 12 |
| 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 13 |
| 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 15 |
| 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 26 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 28 |
| 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 18 |
| 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 11 |

CALCULATION OF DISCRIMANATION POWER AND
Difficulty Index

| | SUBJECT NUMBER | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 20 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| U | 13 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| P | 36 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| P | 26 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| E | 31 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| R | 35 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | 11 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| G | 27 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |
| R | 10 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 |
| O | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| U | 7 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| P | 4 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| | 5 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | 17 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| | 6 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 |
| | 29 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| | 17 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 |
| | 9 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| | 16 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| | CORRECT ANSWER (U) | 15 | 17 | 14 | 14 | 17 | 14 | 18 | 9 | 10 | 18 | 17 | 15 | 16 | 17 | 15 | 17 |
| | 14 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| | 28 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 |
| L | 37 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 |
| O | 15 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 |
| W | 2 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 |
| E | 24 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 |
| R | 21 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| | 22 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| | 18 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 |
| G | 30 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 |
| R | 34 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 |
| O | 33 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |
| U | 32 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| P | 25 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| | 8 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| | 38 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| | 12 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| | 3 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| | 23 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| | CORRECT ANSWER (L) | 10 | 12 | 8 | 6 | 12 | 8 | 10 | 5 | 6 | 8 | 12 | 11 | 11 | 9 | 10 | 10 |
| | DP = (U-L)/N | 0.26 | 0.26 | 0.32 | 0.42 | 0.26 | 0.32 | 0.42 | 0.21 | 0.21 | 0.53 | 0.26 | 0.21 | 0.26 | 0.42 | 0.26 | 0.37 |
| | Interp. | Sat. | Sat. | Sat. | Good | Sat. | Sat. | Good | Sat. | Sat. | Good | Sat. | Sat. | Sat. | Good | Sat. | Sat. |
| | CORRECTLY(C) | 25 | 29 | 22 | 20 | 29 | 22 | 28 | 14 | 16 | 26 | 29 | 26 | 27 | 26 | 25 | 27 |
| | DI=C/TOTAL | 0.65 | 0.76 | 0.578 | 0.52 | 0.76 | 0.57 | 0.73 | 0.36 | 0.42 | 0.68 | 0.76 | 0.6842 | 0.71 | 0.68 | 0.65 | 0.71 |
| | Interp. | Mod. | Easy | Mod. | Moc. | Easy | Mod. | Easy | Mod. | Mod. | Mod. | Easy | Mod. | Easy | Mod. | Mod. | Easy |

| 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | TOTAL SCORE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 29 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 28 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 28 |
| 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 27 |
| 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 26 |
| 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 26 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 25 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 25 |
| 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 24 |
| 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 23 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 23 |
| 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 22 |
| 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 21 |
| 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 20 |
| 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 20 |
| 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 20 |
| 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 20 |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 20 |
| 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 20 |
| 14 | 12 | 14 | 12 | 15 | 17 | 16 | 15 | 16 | 17 | 13 | 17 | 11 | 15 | |
| 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 19 |
| 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 19 |
| 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 18 |
| 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 18 |
| 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 18 |
| 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 18 |
| 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 18 |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 17 |
| 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 17 |
| 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 15 |
| 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 13 |
| 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 12 |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 12 |
| 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 11 |
| 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 11 |
| 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 10 |
| 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 9 |
| 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 8 |
| 8 | 5 | 7 | 6 | 11 | 13 | 11 | 11 | 12 | 9 | 9 | 11 | 7 | 11 | |
| 0.32 | 0.37 | 0.37 | 0.32 | 0.21 | 0.21 | 0.26 | 0.21 | 0.21 | 0.42 | 0.21 | 0.32 | 0.21 | 0.21 | |
| Sat. | Sat. | Sat. | Sat. | Sat. | Sat. | Sat. | Sat. | Sat. | Good | Sat. | Sat. | Sat. | Sat. | |
| 22 | 17 | 21 | 18 | 26 | 30 | 27 | 26 | 28 | 26 | 22 | 28 | 18 | 26 | |
| 0.57 | 0.44 | 0.55 | 0.47 | 0.68 | 0.78 | 0.71 | 0.68 | 0.73 | 0.68 | 0.57 | 0.73 | 0.47 | 0.68 | |
| Mod. | Mod. | Mod. | Mod. | Mod. | Easy | Easy | Mod. | Easy | Mod. | Mod. | Easy | Mod. | Mod. | |

| Criterion of Discrimination Power | Criterion of Difficulty Index |
|---|---|
| 0.00 - 0.20 : Poor | 0.00 - 0.30 : Difficult |
| 0.20 - 0.40 : Satisfactory | 0.30 - 0.70 : Moderate |
| 0.40 - 0.70 : Good | 0.70 - 1.00 : Easy |
| 0.70 - 1.00 : Excelent | |

CALCULATION FOR RELIABILITY KR-21

| NO. | X | $X^2$ | NO. | X | $X^2$ |
|---|---|---|---|---|---|
| 1 | 23 | 529 | 31 | 26 | 676 |
| 2 | 18 | 324 | 32 | 12 | 144 |
| 3 | 9 | 81 | 33 | 13 | 169 |
| 4 | 22 | 484 | 34 | 15 | 225 |
| 5 | 21 | 441 | 35 | 26 | 676 |
| 6 | 20 | 400 | 36 | 28 | 784 |
| 7 | 23 | 529 | 37 | 18 | 324 |
| 8 | 11 | 121 | 38 | 11 | 121 |
| 9 | 20 | 400 | | | |
| 10 | 24 | 576 | | | |
| 11 | 25 | 625 | TOTAL | 726 | 15044 |
| 12 | 10 | 100 | n | 38 | |
| 13 | 28 | 784 | MEAN | 19.10 | |
| 14 | 19 | 361 | VAR. | 30.88 | |
| 15 | 18 | 324 | | | |
| 16 | 20 | 400 | | | |
| 17 | 20 | 400 | | | |
| 18 | 17 | 289 | | | |
| 19 | 20 | 400 | | | |
| 20 | 29 | 841 | | | |
| 21 | 18 | 324 | | | |
| 22 | 17 | 289 | | | |
| 23 | 8 | 64 | | | |
| 24 | 18 | 324 | | | |
| 25 | 12 | 144 | | | |
| 26 | 27 | 729 | | | |
| 27 | 25 | 625 | | | |
| 28 | 19 | 361 | | | |
| 29 | 20 | 400 | | | |
| 30 | 16 | 256 | | | |

$$M = \frac{\sum X}{n} = 19.10526$$

$$V = \frac{\sum X^2 - (\sum X)^2/n}{n} = 30.99365$$

$$K = 30$$

KR-21 FORMULA :

$$r = \frac{K}{K-1}\left(1 - \frac{M(K-M)}{KV}\right) = 0.802079$$

Where: r = Reliabillity
n = Number of subjects
M = Mean
V = Variance
K = Number of items

r table = 0.320

Because r greater than r table, so the test is reliable.

---

CALCULATIONS OF EMPIRICAL VALIDITY, r PRODUCT MOMENT*)

| No. | TRY OUT X | SUM Y | $X^2$ | $Y^2$ | XY |
|---|---|---|---|---|---|
| 1 | 23 | 2.7 | 529 | 7.29 | 62.1 |
| 2 | 18 | 3.5 | 324 | 12.25 | 63.0 |
| 3 | 9 | 2.3 | 81 | 5.29 | 20.7 |
| 4 | 22 | 5.5 | 484 | 30.25 | 121.0 |
| 5 | 21 | 4.4 | 441 | 19.36 | 92.4 |
| 6 | 20 | 5.1 | 400 | 26.01 | 102.0 |
| 7 | 23 | 6.3 | 529 | 39.69 | 144.9 |
| 8 | 11 | 3.1 | 121 | 9.61 | 34.1 |
| 9 | 20 | 4.4 | 400 | 19.36 | 88.0 |
| 10 | 24 | 6.4 | 576 | 40.96 | 153.6 |
| 11 | 25 | 2.3 | 625 | 5.29 | 57.5 |
| 12 | 10 | 4.1 | 100 | 16.81 | 41.0 |
| 13 | 28 | 7.0 | 784 | 49.00 | 196.0 |
| 14 | 19 | 4.5 | 361 | 20.25 | 85.5 |
| 15 | 18 | 3.7 | 324 | 13.69 | 66.6 |
| 16 | 20 | 5.2 | 400 | 27.04 | 104.0 |
| 17 | 20 | 4.0 | 400 | 16.00 | 80.0 |
| 18 | 17 | 1.6 | 289 | 2.56 | 27.2 |
| 19 | 20 | 5.8 | 400 | 33.64 | 116.0 |
| 20 | 29 | 8.6 | 841 | 73.96 | 249.4 |
| 21 | 18 | 5.5 | 324 | 30.25 | 99.0 |
| 22 | 17 | 2.9 | 289 | 8.41 | 49.3 |
| 23 | 8 | 2.8 | 64 | 7.84 | 22.4 |
| 24 | 18 | 5.2 | 324 | 27.04 | 93.6 |
| 25 | 12 | 2.0 | 144 | 4.00 | 24.0 |
| 26 | 27 | 7.3 | 729 | 53.29 | 197.1 |
| 27 | 25 | 6.9 | 625 | 47.61 | 172.5 |
| 28 | 19 | 2.8 | 361 | 7.84 | 53.2 |
| 29 | 20 | 6.1 | 400 | 37.21 | 122.0 |
| 30 | 16 | 5.3 | 256 | 28.09 | 84.8 |
| 31 | 26 | 5.9 | 676 | 34.81 | 153.4 |
| 32 | 12 | 3.5 | 144 | 12.25 | 42.0 |
| 33 | 13 | 3.1 | 169 | 9.61 | 40.3 |
| 34 | 15 | 2.8 | 225 | 7.84 | 42.0 |
| 35 | 26 | 5.7 | 676 | 32.49 | 148.2 |
| 36 | 28 | 7.3 | 784 | 53.29 | 204.4 |
| 37 | 18 | 4.4 | 324 | 19.36 | 79.2 |
| 38 | 11 | 2.0 | 121 | 4.00 | 22.0 |
| TOTAL | 726 | 172 | 15044 | 893.54 | 3554.4 |
| n = 38 | | | | | |

X = SCORE OF TRY OUT
Y = SCORE OF SUMATIVE TEST

1. $$r = \frac{n\Sigma xy - \Sigma x.\Sigma y}{\sqrt{[n\Sigma x^2-(\Sigma x)^2][n\Sigma y^2-(\Sigma y)^2]}} = 0.730$$

2. 5% significance level, n = 38, r table = 0.320

3. CONCLUSION :
   Since /r calculation /= 0.730266 > r table, then there is significant correlation between X and Y.
   So, test is valid.

Lampiran V

HARGA KRITIS DARI r PRODUCT MOMENT

| N | Interval Kepercayaan 5% | 1% | N | Interval Kepercayaan 5% | 1% | N | Interval Kepercayaan 5% | 1% |
|---|---|---|---|---|---|---|---|---|
| 3 | 0.997 | 0.999 | 26 | 0.388 | 0.496 | 55 | 0.266 | 0.345 |
| 4 | 0.950 | 0.990 | 27 | 0.381 | 0.487 | 60 | 0.254 | 0.330 |
| 5 | 0.878 | 0.959 | 28 | 0.374 | 0.478 | 65 | 0.244 | 0.317 |
| | | | 29 | 0.367 | 0.470 | | | |
| 6 | 0.811 | 0.917 | 30 | 0.361 | 0.463 | 70 | 0.235 | 0.306 |
| 7 | 0.754 | 0.874 | | | | 75 | 0.227 | 0.296 |
| 8 | 0.707 | 0.874 | 31 | 0.355 | 0.456 | 80 | 0.220 | 0.286 |
| 9 | 0.666 | 0.798 | 32 | 0.349 | 0.449 | 85 | 0.213 | 0.278 |
| 10 | 0.632 | 0.765 | 33 | 0.344 | 0.442 | 90 | 0.207 | 0.270 |
| | | | 34 | 0.339 | 0.436 | | | |
| 11 | 0.602 | 0.735 | 35 | 0.334 | 0.430 | 95 | 0.202 | 0.263 |
| 12 | 0.576 | 0.708 | | | | 100 | 0.195 | 0.256 |
| 13 | 0.553 | 0.684 | 36 | 0.329 | 0.424 | 125 | 0.176 | 0.230 |
| 14 | 0.532 | 0.661 | 37 | 0.325 | 0.418 | 150 | 0.159 | 0.210 |
| 15 | 0.514 | 0.641 | 38 | 0.320 | 0.413 | 175 | 0.148 | 0.194 |
| | | | 39 | 0.316 | 0.408 | | | |
| 16 | 0.497 | 0.623 | 40 | 0.321 | 0.403 | 200 | 0.138 | 0.181 |
| 17 | 0.482 | 0.606 | | | | 300 | 0.113 | 0.148 |
| 18 | 0.468 | 0.590 | 41 | 0.308 | 0.398 | 400 | 0.098 | 0.128 |
| 19 | 0.456 | 0.575 | 42 | 0.304 | 0.393 | 500 | 0.088 | 0.115 |
| 20 | 0.444 | 0.561 | 43 | 0.301 | 0.389 | 600 | 0.080 | 0.105 |
| | | | 44 | 0.297 | 0.408 | | | |
| 21 | 0.433 | 0.549 | 45 | 0.294 | 0.380 | 700 | 0.074 | 0.097 |
| 22 | 0.423 | 0.537 | | | | 800 | 0.070 | 0.091 |
| 23 | 0.413 | 0.526 | 46 | 0.291 | 0.376 | 900 | 0.065 | 0.086 |
| 24 | 0.404 | 0.515 | 47 | 0.288 | 0.372 | | | |
| 25 | 0.396 | 0.505 | 48 | 0.284 | 0.368 | 1000 | 0.062 | 0.081 |
| | | | 49 | 0.281 | 0.364 | | | |
| | | | 50 | 0.279 | 0.361 | | | |

N = jumlah pasangan yang digunakan untuk menghitung r.

Tabel ini disusun oleh L.D. Edwison dari $r = \frac{t^2}{N - 2 + t^2}$

Wert dkk., p. 424

# CALCULATION FOR TWO MEANS TEST

| NO. | xA | x²A | xC | x²C |
|---|---|---|---|---|
| 1 | 28 | 784 | 27 | 729 |
| 2 | 28 | 784 | 16 | 256 |
| 3 | 29 | 841 | 28 | 784 |
| 4 | 24 | 576 | 20 | 400 |
| 5 | 19 | 361 | 26 | 676 |
| 6 | 28 | 784 | 25 | 625 |
| 7 | 24 | 576 | 24 | 576 |
| 8 | 27 | 729 | 23 | 529 |
| 9 | 26 | 676 | 23 | 529 |
| 10 | 24 | 576 | 25 | 625 |
| 11 | 24 | 576 | 25 | 625 |
| 12 | 26 | 676 | 25 | 625 |
| 13 | 25 | 625 | 18 | 324 |
| 14 | 27 | 729 | 24 | 576 |
| 15 | 27 | 729 | 26 | 676 |
| 16 | 26 | 676 | 21 | 441 |
| 17 | 26 | 676 | 21 | 441 |
| 18 | 23 | 529 | 22 | 484 |
| 19 | 25 | 625 | 25 | 625 |
| 20 | 26 | 676 | 22 | 484 |
| 21 | 26 | 676 | 21 | 441 |
| 22 | 26 | 676 | 23 | 529 |
| 23 | 26 | 676 | 21 | 441 |
| 24 | 24 | 576 | 26 | 676 |
| 25 | 23 | 529 | 27 | 729 |
| 26 | 25 | 625 | 28 | 784 |
| 27 | 29 | 841 | 24 | 576 |
| 28 | 26 | 676 | 23 | 529 |
| 29 | 26 | 676 | 22 | 484 |
| 30 | 26 | 676 | 21 | 441 |
| 31 | 23 | 529 | 25 | 625 |
| 32 | 24 | 576 | 23 | 529 |
| 33 | 25 | 625 | 30 | 900 |
| 34 | 23 | 529 | 25 | 625 |
| 35 | 24 | 576 | 25 | 625 |
| 36 | 16 | 256 | 27 | 729 |
| 37 | 26 | 676 | 25 | 625 |
| 38 | 29 | 841 | 24 | 576 |
| 39 | 23 | 529 | 17 | 289 |
| TOTAL | 982 | 24968 | 923 | 22183 |
| n | 39 | - | 39 | - |
| MEAN | 25.2 | | 23.7 | |
| SD | 2.522235 | | 2.985344 | |

TESTS OF HYPOTHESES :

1. Ho : $m_A = m_C$, there is no difference between the mean groups.
   Ha : $m_A > m_C$, mean score of A group is greater than C group.

2. t-test, where df. = $n_A + n_C - 2$ = 76
   t(0.05) = 1.671

3. Calculation for t observation (to) :

   A : EXPERIMENTAL

$$\bar{x} = \frac{\sum x}{n} = 25.17948 \quad ; \quad n = 39$$

$$s = \sqrt{\frac{n\sum x^2 - (\sum x)^2}{n\,(n-1)}} = 2.522235$$

   C : CONTROL

$$\bar{x} = \frac{\sum x}{n} = 23.66666 \quad ; \quad n = 39$$

$$s = \sqrt{\frac{n\sum x^2 - (\sum x)^2}{n\,(n-1)}} = 2.985344$$

$$to = \frac{\bar{x}_A - \bar{x}_C}{\sqrt{\frac{(n_A-1)s^2_A + (n_C-1)s^2_C}{n_A + n_C - 2}\left(\frac{1}{n_A} + \frac{1}{n_C}\right)}} = 2.417$$

3. CONCLUSION :
   Because t observation = 2.417374 > t(0.05)
   so Ho is rejected.
   Hence we conclude that the difference between groups is significant, and that the A group is greater.

# TABEL - t

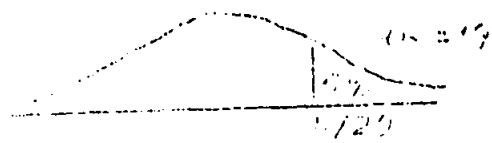
## HARGA - HARGA t

| df = tk | t(.100) | t(.050) | t(.025) | t(.010) | t(.005) |
|---|---|---|---|---|---|
| 1 | 3.078 | 6.314 | 12.706 | 31.821 | 63.657 |
| 2 | 1.886 | 2.920 | 4.303 | 6.965 | 9.925 |
| 3 | 1.638 | 2.353 | 3.182 | 4.541 | 5.841 |
| 4 | 1.533 | 2.132 | 2.776 | 3.747 | 4.604 |
| 5 | 1.476 | 2.015 | 2.571 | 3.365 | 4.032 |
| 6 | 1.440 | 1.943 | 2.447 | 3.143 | 3.707 |
| 7 | 1.415 | 1.895 | 2.365 | 2.998 | 3.499 |
| 8 | 1.397 | 1.860 | 2.306 | 2.896 | 3.355 |
| 9 | 1.383 | 1.833 | 2.262 | 2.821 | 3.250 |
| 10 | 1.372 | 1.812 | 2.228 | 2.764 | 3.169 |
| 11 | 1.363 | 1.796 | 2.201 | 2.718 | 3.106 |
| 12 | 1.356 | 1.782 | 2.179 | 2.681 | 3.055 |
| 13 | 1.350 | 1.771 | 2.160 | 2.650 | 3.012 |
| 14 | 1.345 | 1.761 | 2.145 | 2.624 | 2.977 |
| 15 | 1.341 | 1.753 | 2.131 | 2.602 | 2.947 |
| 16 | 1.337 | 1.746 | 2.120 | 2.583 | 2.921 |
| 17 | 1.333 | 1.740 | 2.110 | 2.567 | 2.898 |
| 18 | 1.330 | 1.734 | 2.101 | 2.552 | 2.878 |
| 19 | 1.328 | 1.729 | 2.093 | 2.539 | 2.861 |
| 20 | 1.325 | 1.725 | 2.086 | 2.528 | 2.845 |
| 21 | 1.323 | 1.721 | 2.080 | 2.518 | 2.831 |
| 22 | 1.321 | 1.717 | 2.074 | 2.508 | 2.819 |
| 23 | 1.319 | 1.714 | 2.069 | 2.500 | 2.807 |
| 24 | 1.318 | 1.711 | 2.064 | 2.492 | 2.797 |
| 25 | 1.316 | 1.708 | 2.060 | 2.485 | 2.787 |
| 26 | 1.315 | 1.706 | 2.056 | 2.479 | 2.779 |
| 27 | 1.314 | 1.703 | 2.052 | 2.473 | 2.771 |
| 28 | 1.313 | 1.701 | 2.048 | 2.467 | 2.763 |
| 29 | 1.311 | 1.699 | 2.045 | 2.462 | 2.756 |
| 30 | 1.310 | 1.697 | 2.042 | 2.457 | 2.750 |
| 40 | 1.303 | 1.684 | 2.021 | 2.423 | 2.704 |
| 60 | 1.296 | 1.671 | 2.000 | 2.390 | 2.660 |
| 120 | 1.289 | 1.658 | 1.980 | 2.358 | 2.617 |
| inf | 1.282 | 1.645 | 1.960 | 2.326 | 2.576 |

Contoh:

t(5%;19) = 1.729

t(1%;14) = 2.624




HARGA KRITIK r UNTUK TARAF SIGNIFIKANSI 5% DAN 1%

| ARAH PENGUJIAN | 0.05 | 0.01 |
|---|---|---|
| DUA ARAH | ± 1,96 | ± 2,58 |
| ARAH KIRI | - 1,65 | - 2,33 |
| ARAH KANAN | + 1,96 | + 2,33 |