# APPENDIX

# READING PASSAGES OF PRETEST AND POSTTEST

Name :                                                    Class/Number :

Read the passages carefully and then choose the best answer.

## Text I

Noise is a sound that is unwanted, disagreeable, and disturbing. The world and its cities steadily grow noisier. Public health doctors and specialists in hearing disorders use term "noise pollution" to describe the menace of prolonged unpleasant sound.

For centuries, noise has been a nuisance. Scientist and physicians have gathered evidence showing the effects of excessive noise. Besides a temporary or permanent loss in hearing acuity (sharpness) constant exposure to loud noise can cause nervousness and fatigue. Doctors think it may also be responsible for some illness. But apart from its effects on health and hearing, noise may sound that people want to hear, hinders concentration and interferes with sleep.

Vibrations are the source of all sounds. Sound waves travel outward in all directions from the vibrating object as example a loudspeaker or the turbulent gas of a jet engine exhaust. Generally, the sound come to us as waves a second. The loudness or softness of the sound that we hear depends amplitude with which the vibrations reach our ears. Generally, the greater the intensity of the sound wave, the louder that sound seem to us.

In hearing loss caused by prolonged exposure to excessive noise, the high frequency cells wear out first. A person may not realize for some time that he is no longer hearing high-pitched sound well. If excess noise continues, the middle frequency cells wear out next, and finally the low frequency cells.

Taken from: Penuntun Belajar
Bahasa Inggris I

1. What is noise? It is ...
   a. a sound that is produced by man
   b. an annoying sound
   c. a sound that people want to hear
   d. the source of all sounds

2. "Doctors think it may also be responsible for some illness" (paragraph 2, line 9) The underlined word refers to ...
   a. a temporary loss              c. nervousness
   b. noise                         d. fatigue

3. The second paragraph tells us about ...
   a. the effects of noise
   b. the effort of scientists and physicians to examine noise

c. lossing in hearing acuity caused by noise

d. how noise can hinder concentration

4. The volume of the sound depends on the ...

   a. vibrations

   b. sound waves

   c. noise

   d. sound amplitude

5. How many kinds of cells are there in our ears?

   a. one

   b. two

   c. three

   d. four

6. The best title for this passage is ...

   a. The Dangers of Noise

   b. The Source of Noise

   c. How can Sound Reach Our Ears?

   d. Noise Pollution

## Text II

The atmosphere is *composed* mainly by oxygen and nitrogen gases, together with *water vapour* and smaller amounts of carbon dioxide, and other gases. But the air contains small amounts of impurities. These impurities are usually in such small amounts that are not so important.

Air is said to be polluted when it contains enough harmful impurities or pollutants which affect the health, safety, or comport of living things. They could be tiny particles of matter or gases not normally found in air. Polluted air can harm animals as well as man. For this reason, our air supply should be closely watched and managed to assure its good quality.

The main types of air pollution are natural pollution and pollution caused by man. Natural pollutants are windblown dust, pollen from plants, fog, and the like. Acts of nature such as these are often beyond human control.

The pollution caused by man is a more serious type of air pollution. Most of this pollution is produced by industry and by vehicles such a car, trucks, and aeroplanes. It becomes worse as society becomes more industrialized – as more automobiles are driven, new factories are built, and existing factories are expanded.

The exhaust from vehicles in city traffic fill the air with exhaust gases. Smoke from cigarettes can pollute the air in a closed room. Sometimes, factories activities creates chemicals waste that

evaporate into the air. So, smoke from power plants and factories enter the atmosphere at higher levels.

The damage caused by air pollution is enormous. Many flower and vegetable crops get ill effects by car exhaust gases. Tree have been killed by pollution from power plants. Cattle have been poisoned by the fumes from factories. Air pollution causes rubber tyres on automobiles to crack and becomes porous.

But the high cost of air pollution is most strikingly illustrated in its damaging effects on human bodies. Air pollution causes eye irritations, scratchy throasts, and respiratory illnesses. It also contributes to a number of serious diseases.

7. Pollutes air is air that ...

    a. is composed mainly by oxygen, nitrogen, carbondioxide, water vapour, and other gases.

    b. Contains small amounts of impurities.

    c. Is just produced by vehicles and industry.

    d. Contains dangerous pollutants.

8. "They could be tiny particles ..." (paragraph 2, line 8)

    The underlined word refers to ...

    a. air                   c. living things

    b. impurities           d. gases

9. The fourth paragraph tells us about ...

    a. the main types or air pollution      c. the process of air pollution

    b. the pollution caused by man        d. the effect of industrialization

10. Where can you find the effect of air pollution? In paragraph ...

    a. three               c. five

    b. four               d. six

11. This passage is concerned with ...

    a. air pollution          c. the dangers of air pollution

    b. the types of air pollution     d. how air pollution occurs

12. The sources of pollution caused by man come from these things, except ...

    a. dust               c. motorbikes

    b. power plants        d. cigarette smoke

13. One of these statements is not the dangers of air pollution, that is ...

    a. it causes respiratory illness

    b. it affects our health and hearing

    c. it poisons many animals

    d. it may kill many plants.

Text III

    The Toraja are descendants of immigrants who entered Indonesia a long, long time ago from South China. They believe in *ancestral worship*, and one of the *customs* that is still practised today is the "death feast". A *deceased* person is not burried immediately, but kept in a coffin called "tongkonan" for as long as two years. The corpse is treated as though still among the living and offered food and drink. This practice comes to an end only when the burrial ceremonies have taken place.

    The preparations for a funeral take along time and cost a lot of money. People need at least one year to prepare the "death feast" and to *notify* the relatives about the *forthcoming ceremonies*. These belonged to, because only the members of the top and second classes are *entitled to* the most elaborate funeral ceremonies. On the other hand, members of the lowest classes are not permitted to hold such ceremonies, even though they may have reached high positions in society during their lifetimes.

    The Toraja society recognizes three social classes, namely: the highest class or "tokapua", to which belong the landlords and people in traditional leading ship position; the second class or "tomakako", to which belong to smaller landowners and people in middle class position; and the common people or "tobuda", to which belong the manual workers and the share – cropers. The highest class makes up 5% the second 25%, and the lowest 70% of the population, which according to the 1972 census numbered 316,986.

<div align="right">Taken from: ENGLISH 1,<br>Tim Penulis Bahasa Inggris</div>

14. this passage is concerned with ...

    a. the tourist resort      c. the "Death Feast"

    b. the religious custom    d. Tana Toraja

15. A lot of tourists come to Toraja because they want to see ...

    a. the unique people      c. the beautiful scenery

    b. the traditional houses    d. the death ceremony

16. What does the word "this" in line 7 refer to?

    a. the death feast      c. Tongkonan

    b. a deceased person    d. the corpse

17. The main idea of the second paragraph is ...

    a. the practice of "death feast"

    b. the requirements needed to hold the "death feast"

    c. the Toraja society

    d. the top and middle classes of the Toraja society

18. These persons below may hold the "death feast", except ...

    a. a very rich farmer          c. a religion leader

    b. a landowner                 d. a person belonging to "tomakako"

19. According to the census 1972, the number of the Toraja who belongs to "tokapua" is about ... people.

    a. 15.000                      c. 95.000

    b. 80.000                      d. 220.000

20. The Toraja's ancestors come from ...

    a. Malaya                      c. North Sulawesi

    b. Central Sulawesi            d. South China


----- Good Luck -----

# AMUSEMENT

The Indonesian people are proud of their ancient customs. Huge crowd gather to see and watch a ritual ceremony. It is the Sekaten festival, which is celebrated on the 12th day of the Arabic month Rabi'ul-awal. It is always celebrated to commemorate the birth of the Prophet Muhammad. The festival involves splendid procession, in which two rice mountain, or 'gunungan', are borne from the Palace to the Great Mosque. They are male and female gunungan. The male gunungan has a cone shape decorated with long beans, red and green chillies, and various other vegetables. The female gunungan, whose shape is said to resemble the mallet of a Javanese 'gender' (bronze metallophone) is made up of hundreds of plates of glutinous rice. The festival is celebrated is Surakarta and Yogyakarta.

Museums and art galleries of national standing can be found in Jakarta and other major cities, such as the Affandi Museum in Yogyakarta, the H. Widayat Museum in Mungkid, two kilometres from the famous Borobudur Temple, and the Suteja Neka Museum in Ubud, Bali. The musical arts in Indonesia have won Asia's acclaim. There is a nationally known symphony orchestra called Twilight Orchestra which gives the performance in Jakarta.

Indonesia – made television and radio programme produced by the RRI and TVRI – the national radio and television network – are famous all over Indonesia. Other notable programmes are produced by the Independent Television Authority (RCTI – SCTV and ANTV).

The foreign and domestic 'tourists enjoy the seashore, and many coastal resorts attract thousands of people, especially on weekends. Towns like Pangandaran, Pelabuhanratu on the south coast of West Java, and Kuta in Bali, also attract many foreign visitors.

After watching the festival and procession, and after attending the exhibition in the daytime, they usually feel tired. Some of them spend the time reading in their hotel rooms, and some of them go to the night club to seek for pleasure. They go there just for amusement.

# AIR POLLUTION

The gases of the atmosphere cannot be seen, and we are rarely aware of them. But they are of the greatest importance. Without the atmosphere, people, animals, and plants could not live. Of almost equal importance is the quality of the atmosphere or air – whether it is pure or polluted (meaning impure).

All air contains small amounts of impurities. In rural areas, far remove from factories and heavy traffic, the air may contain pollen from plants, dust from the soil, and even bacteria. These impurities are in such small amounts that they are not important.

Air is said to be polluted when it contain enough harmful impurities to affect the health, safety, or comport of living things. The impurities or pollutants, could be tiny practicies of matter or gases not normally found in air.

When people breathe, pollutants in the air may be deposited in the lungs or absorbed into the body and polluted in the lungs or absorbed into the body. And polluted air can harm animals and plants as well as people. For this reason, our air supply should be closely watched and managed to assure its good quality.

There are two main types of air pollution – natural pollution and pollution caused by people. Natural pollutants are windblown dust, pollen fog, and the like. There have been instances when the ash from volcanic eruptions has been blown across large areas of the earth. Forest fires blanketed huge areas with smoke. Acts of nature such as these often beyond human control.

The chief concern is the second and perhaps more serious form of air pollution – the pollution caused by people. Most of this pollution is produced by industry and by vehicle such as cars, trucks, and aeroplanes. It becomes worse as society becomes more industrialized – as more automobiles are driven, new factories are built, and existing factories are expanded. Sometimes the work at factories create waste chemicals that escape into air. Smoke from cigarette can pollute the air in closed room.

# NOISE POLLUTION

Noise is a sound that is unwanted, disagreeable, and disturbing. The world and its cities steadily grow noisier. Public health doctors and specialists in hearing disorders use term "noise pollution" to describe the menace of prolonged unpleasant sound.

For centuries, noise has been a nuisance. Scientist and physicians have gathered evidence showing the effects of excessive noise. Besides a temporary or permanent loss in hearing acuity (sharpness) constant exposure to loud noise can cause nervousness and fatigue. Doctors think it may also be responsible for some illness. But apart from its effects on health and hearing, noise mask sound that people want to hear, hinders concentration and interferes with sleep.

Vibrations are the source of all sounds. Sound waves travel outward in all directions from the vibrating object as example a loudspeaker or the turbulent gas of a jet engine exhaust. Generally, the sounds we hear come to us as waves a second. The loudness or softness of the sound that we hear depends on the amplitude with which the vibrations reach our ears. Generally, the greater the intensity of the sound wave, the louder that sound seem to us.

In hearing loss caused by prolonged exposure to excessive noise, the high frequency cells wear out first. A person may not realize for some time that he is no longer hearing high-pitched sound well. If excess noise continues, the middle frequency cells wear out next, and finally the low frequency cells.

Taken from: Penuntun Belajar

Bahasa Inggris I

by Drs. Artono Wardiman

# PRE TEST AND POST TEST SCORE OF EXPERIMENTAL GROUP
## (COOPERATIVE LEARNING)

| No. | PRE TEST | | | | | | POST TEST | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | FQ | IQ | SMQ | MIQ | SQ | Total | FQ | IQ | SMQ | MIQ | SQ | Total |
| 1. | 30 | 20 | 0 | 20 | 5 | 75 | 30 | 20 | 10 | 15 | 10 | 85 |
| 2. | 10 | 10 | 10 | 5 | 5 | 50 | 20 | 5 | 15 | 15 | 5 | 60 |
| 3. | 25 | 15 | 10 | 15 | 5 | 70 | 30 | 10 | 15 | 15 | 5 | 75 |
| 4. | 15 | 15 | 10 | 20 | 10 | 70 | 25 | 15 | 15 | 15 | 15 | 85 |
| 5. | 15 | 15 | 15 | 10 | 5 | 60 | 25 | 10 | 15 | 15 | 5 | 70 |
| 6. | 15 | 15 | 15 | 15 | 5 | 65 | 15 | 15 | 10 | 20 | 10 | 75 |
| 7. | 25 | 20 | 5 | 10 | 10 | 70 | 25 | 20 | 15 | 15 | 10 | 80 |
| 8. | 20 | 10 | 10 | 15 | 5 | 60 | 25 | 10 | 15 | 20 | 0 | 70 |
| 9. | 25 | 10 | 15 | 20 | 5 | 75 | 25 | 15 | 15 | 20 | 5 | 80 |
| 10. | 25 | 20 | 5 | 20 | 10 | 80 | 15 | 20 | 10 | 15 | 10 | 70 |
| 11. | 15 | 20 | 10 | 10 | 10 | 65 | 20 | 15 | 10 | 20 | 10 | 75 |
| 12. | 15 | 10 | 15 | 5 | 5 | 50 | 20 | 5 | 15 | 15 | 5 | 60 |
| 13. | 30 | 20 | 0 | 20 | 10 | 80 | 30 | 20 | 5 | 15 | 15 | 85 |
| 14. | 30 | 20 | 5 | 20 | 0 | 75 | 30 | 20 | 15 | 15 | 10 | 90 |
| 15. | 30 | 15 | 5 | 15 | 10 | 75 | 30 | 5 | 15 | 15 | 10 | 75 |
| 16. | 25 | 15 | 10 | 15 | 5 | 70 | 25 | 15 | 10 | 10 | 10 | 70 |
| 17. | 30 | 10 | 15 | 10 | 10 | 75 | 30 | 15 | 15 | 15 | 10 | 85 |
| 18. | 15 | 10 | 10 | 10 | 5 | 50 | 20 | 15 | 15 | 10 | 0 | 55 |
| 19. | 25 | 20 | 5 | 10 | 10 | 70 | 25 | 20 | 10 | 20 | 5 | 80 |
| 20. | 30 | 15 | 15 | 15 | 5 | 80 | 30 | 15 | 15 | 10 | 15 | 85 |
| 21. | 25 | 20 | 10 | 20 | 10 | 85 | 20 | 20 | 15 | 20 | 15 | 90 |
| 22. | 20 | 10 | 15 | 20 | 15 | 80 | 25 | 20 | 15 | 20 | 15 | 95 |
| 23. | 30 | 15 | 15 | 20 | 10 | 90 | 30 | 20 | 15 | 20 | 15 | 100 |
| 24. | 15 | 10 | 15 | 20 | 5 | 65 | 20 | 15 | 10 | 15 | 15 | 70 |
| 25. | 10 | 15 | 15 | 15 | 5 | 60 | 10 | 10 | 15 | 10 | 10 | 55 |
| 26. | 10 | 15 | 15 | 10 | 5 | 55 | 5 | 5 | 15 | 15 | 5 | 45 |
| 27. | 25 | 15 | 15 | 10 | 10 | 75 | 30 | 20 | 10 | 15 | 10 | 85 |
| 28. | 20 | 10 | 10 | 10 | 10 | 60 | 20 | 15 | 0 | 10 | 5 | 50 |
| 29. | 10 | 10 | 15 | 10 | 10 | 55 | 15 | 20 | 15 | 5 | 10 | 65 |
| 30. | 20 | 10 | 10 | 15 | 10 | 65 | 25 | 10 | 15 | 15 | 5 | 70 |
| 31. | 20 | 10 | 10 | 15 | 5 | 60 | 20 | 15 | 15 | 5 | 10 | 65 |
| 32. | 25 | 10 | 15 | 20 | 15 | 85 | 25 | 20 | 10 | 15 | 10 | 80 |
| 33. | 20 | 15 | 15 | 20 | 15 | 85 | 30 | 20 | 15 | 15 | 15 | 95 |
| 34. | 25 | 10 | 15 | 20 | 10 | 80 | 30 | 15 | 15 | 20 | 10 | 90 |
| 35. | 20 | 10 | 10 | 20 | 10 | 70 | 15 | 5 | 15 | 15 | 10 | 60 |
| 36. | 15 | 10 | 15 | 15 | 5 | 60 | 20 | 10 | 15 | 20 | 10 | 75 |
| 37. | 15 | 20 | 10 | 10 | 10 | 65 | 20 | 10 | 10 | 20 | 10 | 70 |
| 38. | 5 | 10 | 10 | 10 | 5 | 40 | 10 | 5 | 15 | 10 | 10 | 50 |
| 39. | 10 | 5 | 10 | 10 | 10 | 45 | 20 | 15 | 5 | 10 | 10 | 60 |
| 40. | 20 | 15 | 15 | 20 | 10 | 80 | 25 | 15 | 15 | 20 | 10 | 85 |
| TOTAL | | | | | | 2725 | | | | | | 2965 |

# THE CALCULATION OF T-TABLE IN TOTAL QUESTIONS

| No. | Pre Test (X) | Post Test (Y) | D (Y-X) | D² |
|-----|-----|-----|-----|-----|
| 1. | 75 | 85 | 10 | 100 |
| 2. | 50 | 60 | 10 | 100 |
| 3. | 70 | 75 | 5 | 25 |
| 4. | 70 | 85 | 15 | 225 |
| 5. | 60 | 70 | 10 | 100 |
| 6. | 65 | 75 | 10 | 100 |
| 7. | 70 | 80 | 10 | 100 |
| 8. | 60 | 70 | 10 | 100 |
| 9. | 75 | 80 | 5 | 25 |
| 10. | 80 | 70 | (-)10 | 100 |
| 11. | 65 | 75 | 10 | 100 |
| 12. | 50 | 60 | 10 | 100 |
| 13. | 80 | 85 | 5 | 25 |
| 14. | 75 | 90 | 15 | 225 |
| 15. | 75 | 75 | 0 | 0 |
| 16. | 70 | 70 | 0 | 0 |
| 17. | 75 | 85 | 10 | 100 |
| 18. | 50 | 55 | 5 | 25 |
| 19. | 70 | 80 | 10 | 100 |
| 20. | 80 | 85 | 5 | 25 |
| 21. | 85 | 90 | 5 | 25 |
| 22. | 80 | 95 | 15 | 225 |
| 23. | 90 | 100 | 10 | 100 |
| 24. | 65 | 70 | 5 | 25 |
| 25. | 60 | 55 | (-)5 | 25 |
| 26. | 55 | 45 | (-)10 | 100 |
| 27. | 75 | 85 | 10 | 100 |
| 28. | 60 | 50 | (-)10 | 100 |
| 29. | 55 | 65 | 10 | 100 |
| 30. | 65 | 70 | 5 | 25 |
| 31. | 60 | 65 | 5 | 25 |
| 32. | 85 | 80 | (-)5 | 25 |
| 33. | 85 | 95 | 10 | 100 |
| 34. | 80 | 90 | 10 | 100 |
| 35. | 70 | 60 | (-)10 | 100 |
| 36. | 60 | 75 | 15 | 225 |
| 37. | 65 | 70 | 5 | 25 |
| 38. | 40 | 50 | 10 | 100 |
| 39. | 45 | 60 | 15 | 225 |
| 40. | 80 | 85 | 5 | 25 |
| Total | 2725 | 2965 | 290 | 3450 |
| n | | | 40 | |
| Rata-rata | 68,13 | 74,13 | ⁻,25 | |
| SD | | | 6,3 | |

## TEST OF HYPOTHESES :

1. Ho : $\mu A = \mu B$ there is no difference between post test and pre test

   Ha : $\mu A > \mu B$ score of post test is greater than pre test

2. t-test, where db = n-1 = 39

   t (.05) = 1,684

3. Calculation for t-observation :

$$\overline{D} = \frac{\sum D}{n} = 7,25$$

$$S = \sqrt{\frac{n.\sum D^2 - \left(\sum D\right)^2}{n(n-1)}} = 6,3$$

$$t = \frac{\overline{D}}{S / \sqrt{n}} = 7,279$$

4. Conclusion:

   Because t observation = 7,279 > t (0,05), Ho is rejected.

   Hence, we conclude that at a 0,05 level there is a significant difference between pre-test and post-test.

# THE CALCULATION OF T-TEST IN FACTUAL QUESTIONS

| No. | Pre Test (X) | Post Test (Y) | D (Y-X) | $D^2$ |
|---|---|---|---|---|
| 1. | 30 | 30 | 0 | 0 |
| 2. | 10 | 20 | 10 | 100 |
| 3. | 25 | 30 | 5 | 25 |
| 4 | 15 | 25 | 10 | 100 |
| 5. | 15 | 25 | 10 | 100 |
| 6. | 15 | 15 | 0 | 0 |
| 7. | 25 | 25 | 0 | 0 |
| 8. | 20 | 25 | 5 | 25 |
| 9. | 25 | 25 | 0 | 0 |
| 10. | 25 | 15 | (10) | 100 |
| 11. | 15 | 20 | 5 | 25 |
| 12. | 15 | 20 | 5 | 25 |
| 13. | 30 | 30 | 0 | 0 |
| 14. | 30 | 30 | 0 | 0 |
| 15. | 30 | 30 | 0 | 0 |
| 16. | 25 | 25 | 0 | 0 |
| 17. | 30 | 30 | 0 | 0 |
| 18. | 15 | 20 | 5 | 25 |
| 19. | 25 | 25 | 0 | 0 |
| 20. | 30 | 30 | 0 | 0 |
| 21. | 25 | 20 | (5) | 25 |
| 22. | 20 | 25 | 5 | 25 |
| 23. | 30 | 30 | 0 | 0 |
| 24. | 15 | 20 | 5 | 25 |
| 25. | 10 | 10 | 0 | 0 |
| 26. | 10 | 5 | (5) | 25 |
| 27. | 25 | 30 | 5 | 25 |
| 28. | 20 | 20 | 0 | 0 |
| 29. | 10 | 15 | 5 | 25 |
| 30. | 20 | 25 | 5 | 25 |
| 31. | 20 | 20 | 0 | 0 |
| 32. | 25 | 25 | 0 | 0 |
| 33. | 20 | 30 | 10 | 100 |
| 34. | 25 | 30 | 5 | 25 |
| 35. | 20 | 15 | (5) | 25 |
| 36. | 15 | 20 | 5 | 25 |
| 37. | 15 | 20 | 5 | 25 |
| 38. | 5 | 10 | 5 | 25 |
| 39. | 10 | 20 | 10 | 100 |
| 40. | 20 | 25 | 5 | 25 |
| Total | 810 | 910 | 125 | 1050 |
| n | | | 40 | |
| Rata-rata | 20,250 | 22,75 | 3,125 | |
| SD | | | 5,21 | |

## TEST OF HYPOTHESES :

1. Ho : μA = μB there is no difference between post test and pre test

   Ha : μA > μB score of post test is greater than pre test

2. t-test, where db = n-1 = 39

   t (.05) = 1,684

3. Calculation for t-observation :

$$\overline{D} = \frac{\sum D}{n} = 3{,}125$$

$$S = \sqrt{\frac{n.\sum D^2 - \left(\sum D\right)^2}{n(n-1)}} = 5{,}21$$

$$t = \frac{\overline{D}}{S / \sqrt{n}} = 3{,}792$$

4. Conclusion:

   Because t observation = 3.792 > t (0,05), Ho is rejected.

   Hence, we conclude that at a 0,05 level there is a significant difference between pre-test and post-test.

# THE CALCULATION OF T-TEST IN INFERENCE QUESTIONS

| No. | Pre Test (X) | Post Test (Y) | D (Y-X) | D² |
|-----|-----|-----|-----|-----|
| 1. | 20 | 20 | 0 | 0 |
| 2. | 10 | 5 | (5) | 25 |
| 3. | 15 | 10 | (5) | 25 |
| 4. | 15 | 15 | 0 | 0 |
| 5. | 15 | 10 | (5) | 25 |
| 6. | 15 | 15 | 0 | 0 |
| 7. | 20 | 20 | 0 | 0 |
| 8. | 10 | 10 | 0 | 0 |
| 9. | 10 | 15 | 5 | 25 |
| 10. | 20 | 20 | 0 | 0 |
| 11. | 20 | 15 | (5) | 25 |
| 12. | 10 | 5 | (5) | 25 |
| 13. | 20 | 20 | 0 | 0 |
| 14. | 20 | 20 | 0 | 0 |
| 15. | 15 | 5 | (10) | 100 |
| 16. | 15 | 15 | 0 | 0 |
| 17. | 10 | 15 | 5 | 25 |
| 18. | 10 | 15 | 5 | 25 |
| 19. | 20 | 20 | 0 | 0 |
| 20. | 15 | 15 | 0 | 0 |
| 21. | 20 | 20 | 0 | 0 |
| 22. | 10 | 20 | 10 | 100 |
| 23. | 15 | 20 | 5 | 25 |
| 24. | 10 | 15 | 5 | 25 |
| 25. | 15 | 10 | (5) | 25 |
| 26. | 15 | 5 | (10) | 100 |
| 27. | 15 | 20 | 5 | 25 |
| 28. | 10 | 15 | 5 | 25 |
| 29. | 10 | 20 | 10 | 100 |
| 30. | 10 | 10 | 0 | 0 |
| 31. | 10 | 15 | 5 | 25 |
| 32. | 10 | 20 | 10 | 100 |
| 33. | 15 | 20 | 5 | 25 |
| 34. | 10 | 15 | 5 | 25 |
| 35. | 10 | 5 | (5) | 25 |
| 36. | 10 | 10 | 0 | 0 |
| 37. | 20 | 10 | (10) | 100 |
| 38. | 10 | 5 | (5) | 25 |
| 39. | 5 | 15 | 10 | 100 |
| 40. | 15 | 15 | 0 | 0 |
| Total | 550 | 570 | 90 | 1150 |
| n | | | 40 | |
| Rata-rata | 13,75 | 14,25 | 2,25 | |
| SD | | | 4,93 | |

## TEST OF HYPOTHESES :

1. Ho : $\mu A = \mu B$ there is no difference between post test and pre test

   Ha : $\mu A > \mu B$ score of post test is greater than pre test

2. t-test, where db = n-1 = 39

   t (.05) = 1,684

3. Calculation for t-observation :

$$\overline{D} = \frac{\sum D}{n} = 2,25$$

$$S = \sqrt{\frac{n.\sum D^2 - \left(\sum D\right)^2}{n(n-1)}} = 4,93$$

$$t = \frac{\overline{D}}{S/\sqrt{n}} = 2,884$$

4. Conclusion:

   Because t observation = 2,884 > t (0,05), Ho is rejected.

   Hence, we conclude that at a 0,05 level there is a significant difference between pre-test and post-test.

# THE CALCULATION OF T-TEST IN SUBJECT MATTER QUESTIONS

| No. | Pre Test (X) | Post Test (Y) | D (Y-X) | $D^2$ |
|---|---|---|---|---|
| 1. | 0 | 10 | 10 | 100 |
| 2. | 10 | 15 | 5 | 25 |
| 3. | 10 | 15 | 5 | 25 |
| 4. | 10 | 15 | 5 | 25 |
| 5. | 15 | 15 | 0 | 0 |
| 6. | 15 | 10 | (5) | 25 |
| 7. | 5 | 15 | 10 | 100 |
| 8. | 10 | 15 | 5 | 25 |
| 9. | 15 | 15 | 0 | 0 |
| 10. | 5 | 10 | 5 | 25 |
| 11. | 10 | 10 | 0 | 0 |
| 12. | 15 | 15 | 0 | 0 |
| 13. | 0 | 5 | 5 | 25 |
| 14. | 5 | 15 | 10 | 100 |
| 15. | 5 | 15 | 10 | 100 |
| 16. | 10 | 10 | 0 | 0 |
| 17. | 15 | 15 | 0 | 0 |
| 18. | 10 | 15 | 5 | 25 |
| 19. | 5 | 10 | 5 | 25 |
| 20. | 15 | 15 | 0 | 0 |
| 21. | 10 | 15 | 5 | 25 |
| 22. | 15 | 15 | 0 | 0 |
| 23. | 15 | 15 | 0 | 0 |
| 24. | 15 | 10 | (5) | 25 |
| 25. | 15 | 15 | 0 | 0 |
| 26. | 15 | 15 | 0 | 0 |
| 27. | 15 | 10 | (5) | 25 |
| 28. | 10 | 0 | (10) | 100 |
| 29. | 15 | 15 | 0 | 0 |
| 30. | 10 | 15 | 5 | 25 |
| 31. | 10 | 15 | 5 | 25 |
| 32. | 15 | 10 | (5) | 25 |
| 33. | 15 | 15 | 0 | 0 |
| 34. | 15 | 15 | 0 | 0 |
| 35. | 10 | 15 | 5 | 25 |
| 36. | 15 | 15 | 0 | 0 |
| 37. | 10 | 10 | 0 | 0 |
| 38. | 10 | 15 | 5 | 25 |
| 39. | 10 | 5 | (5) | 25 |
| 40. | 15 | 15 | 0 | 0 |
| Total | 445 | 515 | 105 | 950 |
| n | | | 40 | |
| Rata-rata | 11,125 | 12,875 | 2,625 | |
| SD | | | 4,16 | |

## TEST OF HYPOTHESES :

1.  Ho : $\mu A = \mu B$ there is no difference between post test and pre test

    Ha : $\mu A > \mu B$ score of post test is greater than pre test

2.  t-test, where db = n-1 = 39

    t (.05) = 1,684

3.  Calculation for t-observation :

$$\overline{D} = \frac{\sum D}{n} = 2,625$$

$$S = \sqrt{\frac{n.\sum D^2 - \left(\sum D\right)^2}{n(n-1)}} = 4,16$$

$$t = \frac{\overline{D}}{S / \sqrt{n}} = 3,989$$

4.  Conclusion:

    Because t observation = 3,989 > t (0,05), Ho is rejected.

    Hence, we conclude that at a 0,05 level there is a significant difference between pre-test and post-test.

# THE CALCULATION OF T-TEST IN MAIN IDEA QUESTIONS

| No. | Pre Test (X) | Post Test (Y) | D (Y-X) | D² |
|---|---|---|---|---|
| 1. | 20 | 15 | (5) | 25 |
| 2. | 5 | 15 | 10 | 100 |
| 3. | 15 | 15 | 0 | 0 |
| 4. | 20 | 15 | (5) | 25 |
| 5. | 10 | 15 | 5 | 25 |
| 6. | 15 | 20 | 5 | 25 |
| 7. | 10 | 15 | 5 | 25 |
| 8. | 15 | 20 | 5 | 25 |
| 9. | 20 | 20 | 0 | 0 |
| 10. | 20 | 15 | (5) | 25 |
| 11. | 10 | 20 | 10 | 100 |
| 12. | 5 | 15 | 10 | 100 |
| 13. | 20 | 15 | (5) | 25 |
| 14. | 20 | 15 | (5) | 25 |
| 15. | 15 | 15 | 0 | 0 |
| 16. | 15 | 10 | (5) | 25 |
| 17. | 10 | 15 | 5 | 25 |
| 18. | 10 | 10 | 0 | 0 |
| 19. | 10 | 20 | 10 | 100 |
| 20. | 15 | 10 | (5) | 25 |
| 21. | 20 | 20 | 0 | 0 |
| 22. | 20 | 20 | 0 | 0 |
| 23. | 20 | 20 | 0 | 0 |
| 24. | 20 | 15 | (5) | 25 |
| 25. | 15 | 10 | (5) | 25 |
| 26. | 10 | 15 | 5 | 25 |
| 27. | 10 | 15 | 5 | 25 |
| 28. | 10 | 10 | 0 | 0 |
| 29. | 10 | 5 | (5) | 25 |
| 30. | 15 | 15 | 0 | 0 |
| 31. | 15 | 5 | (10) | 100 |
| 32. | 20 | 15 | (5) | 25 |
| 33. | 20 | 15 | (5) | 25 |
| 34. | 20 | 20 | 0 | 0 |
| 35. | 20 | 15 | (5) | 25 |
| 36. | 15 | 20 | 5 | 25 |
| 37. | 10 | 20 | 10 | 100 |
| 38. | 10 | 10 | 0 | 0 |
| 39. | 10 | 10 | 0 | 0 |
| 40. | 20 | 20 | 0 | 0 |
| Total | 590 | 605 | 90 | 1125 |
| n | | | 40 | |
| Rata-rata | 14,75 | 15,125 | 2,25 | |
| SD | | | 4,86 | |

## TEST OF HYPOTHESES :

1. Ho : $\mu A = \mu B$ there is no difference between post test and pre test

   Ha : $\mu A > \mu B$ score of post test is greater than pre test

2. t-test, where db = n-1 = 39

   t (.05) = 1,684

3. Calculation for t-observation :

$$\overline{D} = \frac{\sum D}{n} = 2,25$$

$$S = \sqrt{\frac{n.\sum D^2 - \left(\sum D\right)^2}{n(n-1)}} = 4,86$$

$$t = \frac{\overline{D}}{S / \sqrt{n}} = 2,929$$

4. Conclusion:

   Because t observation = 2,929 > t (0,05), Ho is rejected.

   Hence, we conclude that at a 0,05 level there is a significant difference between pre-test and post-test.

# THE CALCULATION OF T-TEST IN STRUCTURAL QUESTIONS

| No. | Pre Test (X) | Post Test (Y) | D (Y-X) | $D^2$ |
|---|---|---|---|---|
| 1. | 5 | 10 | 5 | 25 |
| 2. | 5 | 5 | 0 | 0 |
| 3. | 5 | 5 | 0 | 0 |
| 4. | 10 | 15 | 5 | 25 |
| 5. | 5 | 5 | 0 | 0 |
| 6. | 5 | 10 | 5 | 25 |
| 7. | 10 | 10 | 0 | 0 |
| 8. | 5 | 0 | (5) | 25 |
| 9. | 5 | 5 | 0 | 0 |
| 10. | 10 | 10 | 0 | 0 |
| 11. | 10 | 10 | 0 | 0 |
| 12. | 5 | 5 | 0 | 0 |
| 13. | 10 | 15 | 5 | 25 |
| 14. | 0 | 10 | 10 | 100 |
| 15. | 10 | 10 | 0 | 0 |
| 16. | 5 | 10 | 5 | 25 |
| 17. | 10 | 10 | 0 | 0 |
| 18. | 5 | 0 | (5) | 25 |
| 19. | 10 | 5 | (5) | 25 |
| 20. | 5 | 15 | 10 | 100 |
| 21. | 10 | 15 | 5 | 25 |
| 22. | 15 | 15 | 0 | 0 |
| 23. | 10 | 15 | 5 | 25 |
| 24. | 5 | 15 | 10 | 100 |
| 25. | 5 | 10 | 5 | 25 |
| 26. | 5 | 5 | 0 | 0 |
| 27. | 10 | 10 | 0 | 0 |
| 28. | 10 | 5 | (5) | 25 |
| 29. | 10 | 10 | 0 | 0 |
| 30. | 10 | 5 | (5) | 25 |
| 31. | 5 | 10 | 5 | 25 |
| 32. | 15 | 10 | (5) | 25 |
| 33. | 15 | 15 | 0 | 0 |
| 34. | 10 | 10 | 0 | 0 |
| 35 | 10 | 10 | 0 | 0 |
| 36. | 5 | 10 | 5 | 25 |
| 37. | 10 | 10 | 0 | 0 |
| 38. | 5 | 10 | 5 | 25 |
| 39. | 10 | 10 | 0 | 0 |
| 40. | 10 | 10 | 0 | 0 |
| Total | 320 | 375 | 85 | 725 |
| n | | | 40 | |
| Rata-rata | 8,000 | 9,375 | 2,125 | |
| SD | | | 3,74 | |

## TEST OF HYPOTHESES :

1. Ho : $\mu A = \mu B$ there is no difference between post test and pre test

   Ha : $\mu A > \mu B$ score of post test is greater than pre test

2. t-test, where db = n-1 = 39

   t (.05) = 1,684

3. Calculation for t-observation :

$$\overline{D} = \frac{\sum D}{n} = 2,125$$

$$S = \sqrt{\frac{n.\sum D^2 - \left(\sum D\right)^2}{n(n-1)}} = 3,74$$

$$t = \frac{\overline{D}}{S / \sqrt{n}} = 3,595$$

4. Conclusion:

   Because t observation = 3,595 > t (0,05), Ho is rejected.

   Hence, we conclude that at a 0,05 level there is a significant difference between pre-test and post-test.

## POST TEST SCORE OF

## EXPERIMENTAL GROUP (CL) AND CONTROL GROUP (NON CL)

| No. | EXPERIMENTAL GROUP (COOPERATIVE LEARNING) TOTAL SCORE | CONTROL GROUP (NON COOPERATIVE LEARNING) TOTAL SCORE |
|---|---|---|
| 1. | 85 | 75 |
| 2. | 60 | 80 |
| 3. | 75 | 65 |
| 4. | 85 | 70 |
| 5. | 70 | 70 |
| 6. | 75 | 70 |
| 7. | 80 | 80 |
| 8. | 70 | 70 |
| 9. | 80 | 90 |
| 10. | 70 | 65 |
| 11. | 75 | 55 |
| 12. | 60 | 60 |
| 13. | 85 | 60 |
| 14. | 90 | 85 |
| 15. | 75 | 75 |
| 16. | 70 | 70 |
| 17. | 85 | 60 |
| 18. | 55 | 45 |
| 19. | 80 | 55 |
| 20. | 85 | 60 |
| 21. | 90 | 80 |
| 22. | 95 | 65 |
| 23. | 100 | 70 |
| 24. | 70 | 65 |
| 25. | 55 | 70 |
| 26. | 45 | 65 |
| 27. | 85 | 95 |
| 28. | 50 | 60 |
| 29. | 65 | 80 |
| 30. | 70 | 80 |
| 31. | 65 | 65 |
| 32. | 80 | 60 |
| 33. | 95 | 70 |
| 34. | 90 | 80 |
| 35. | 60 | 60 |
| 36. | 75 | 70 |
| 37. | 70 | 60 |
| 38. | 50 | 85 |
| 39. | 60 | 65 |
| 40. | 85 | 75 |
| TOTAL | 2965 | 2780 |

# THE CALCULATION OF TWO MEANS TEST IN TOTAL QUESTIONS

| No. | COOPERATIVE LEARNING | | NON COOPERATIVE LEARNING | |
|---|---|---|---|---|
| | xA | $x^2A$ | xB | $x^2B$ |
| 1. | 85 | 7225 | 75 | 5625 |
| 2. | 60 | 3600 | 80 | 6400 |
| 3. | 75 | 5625 | 65 | 4225 |
| 4. | 85 | 7225 | 70 | 4900 |
| 5. | 70 | 4900 | 70 | 4900 |
| 6. | 75 | 5625 | 70 | 4900 |
| 7. | 80 | 6400 | 80 | 6400 |
| 8. | 70 | 4900 | 70 | 4900 |
| 9. | 80 | 6400 | 90 | 8100 |
| 10. | 70 | 4900 | 65 | 4225 |
| 11. | 75 | 5625 | 55 | 3025 |
| 12. | 60 | 3600 | 60 | 3600 |
| 13. | 85 | 7225 | 60 | 3600 |
| 14. | 90 | 8100 | 85 | 7225 |
| 15. | 75 | 5625 | 75 | 5625 |
| 16. | 70 | 4900 | 70 | 4900 |
| 17. | 85 | 7225 | 60 | 3600 |
| 18. | 55 | 3025 | 45 | 2025 |
| 19. | 80 | 6400 | 55 | 3025 |
| 20. | 85 | 7225 | 60 | 3600 |
| 21. | 90 | 8100 | 80 | 6400 |
| 22. | 95 | 9025 | 65 | 4225 |
| 23. | 100 | 10000 | 70 | 4900 |
| 24. | 70 | 4900 | 65 | 4225 |
| 25. | 55 | 3025 | 70 | 4900 |
| 26. | 45 | 2025 | 65 | 4225 |
| 27. | 85 | 7225 | 95 | 9025 |
| 28. | 50 | 2500 | 60 | 3600 |
| 29. | 65 | 4225 | 80 | 6400 |
| 30. | 70 | 4900 | 80 | 6400 |
| 31. | 65 | 4225 | 65 | 4225 |
| 32. | 80 | 6400 | 60 | 3600 |
| 33. | 95 | 9025 | 70 | 4900 |
| 34. | 90 | 8100 | 80 | 6400 |
| 35. | 60 | 3600 | 60 | 3600 |
| 36. | 75 | 5625 | 70 | 4900 |
| 37. | 70 | 4900 | 60 | 3600 |
| 38. | 50 | 2500 | 85 | 7225 |
| 39. | 60 | 3600 | 65 | 4225 |
| 40. | 85 | 7225 | 75 | 5625 |
| TOTAL | 2965 | 226875 | 2780 | 197400 |
| n | 40 | | 40 | |
| Mean | 74,13 | | 69,5 | |
| SD | 13,49 | | 10,36 | |

## TEST OF HYPOTHESES :

1. Ho : mA = mB, there is no difference between the means of the groups.

   Ha : mA > mB, mean score of group A is greater than mean score of group B.

2. t-test, where df.f = nA + nB − 2 = 78

   t (.05) = 1,671

3. Calculation for t-observation (to) :

   A : Cooperative Learning (Total Questions)

   $$\bar{x} = \frac{\sum x}{n} = 74{,}13 \quad ; n = 40$$

   $$S = \sqrt{\frac{n\sum x^2 - \left(\sum x\right)^2}{n(n-1)}} = 13{,}49$$

   B : Non Cooperative Learning (Total Questions)

   $$\bar{x} = \frac{\sum x}{n} = 69{,}5 \quad ; n = 40$$

   $$S = \sqrt{\frac{n\sum x^2 - \left(\sum x\right)^2}{n(n-1)}} = 10{,}36$$

   $$to = \frac{\bar{x}A - \bar{x}B}{\sqrt{\frac{(nA-1)S^2A + (nB-1)S^2B}{nA + nB - 2}\left(\frac{1}{nA} + \frac{1}{nB}\right)}} = 1{,}721$$

4. Conclusion:

   Because t observation (to) = 1,721 < t (.05), Ha is accepted.

   Hence, we conclude that the difference between groups is significant and cooperative learning can improve the student's reading comprehension achievement better than non cooperative learning.

# THE CALCULATION OF RELIABILITY KR-21

| No. | x | $x^2$ |
|---|---|---|
| 1. | 19 | 361 |
| 2. | 15 | 225 |
| 3. | 16 | 256 |
| 4. | 9 | 81 |
| 5. | 16 | 256 |
| 6. | 12 | 144 |
| 7. | 14 | 196 |
| 8. | 14 | 196 |
| 9. | 12 | 144 |
| 10. | 8 | 64 |
| 11. | 19 | 361 |
| 12. | 19 | 361 |
| 13. | 15 | 225 |
| 14. | 15 | 225 |
| 15. | 17 | 289 |
| 16. | 18 | 324 |
| 17. | 13 | 169 |
| 18. | 9 | 81 |
| 19. | 12 | 144 |
| 20. | 19 | 361 |
| 21. | 17 | 289 |
| 22. | 16 | 256 |
| 23. | 10 | 100 |
| 24. | 13 | 169 |
| 25. | 18 | 324 |
| 26. | 18 | 324 |
| 27. | 14 | 196 |
| 28. | 14 | 196 |
| 29. | 11 | 121 |
| 30. | 8 | 64 |
| 31. | 15 | 225 |
| 32. | 17 | 289 |
| 33. | 10 | 100 |
| 34. | 18 | 324 |
| 35. | 18 | 324 |
| 36. | 13 | 169 |
| 37. | 13 | 169 |
| 38. | 11 | 121 |
| 39. | 17 | 289 |
| 40. | 10 | 100 |
| TOTAL | 572 | 8612 |
| n | 40 | |
| Mean | 14,3 | |
| Var. | 11,087 | |

$$M = \frac{\sum x}{n} = 14.3$$

$$V = \frac{\sum x^2 - (\sum x)^2}{n} = 11.087$$

$$K = 20$$

## KR-21 FORMULA

$$r = 1 - \frac{M(K-M)}{K.V} = 0.633$$

where:   r   =   Reliability

n   =   Number of subjects

M   =   Mean

V   =   Variance

K   =   Number of items

x   =   Number of correct answer

r table = 0,316

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

# THE CALCULATION OF DIFFICULTY INDEX
# AND DISCRIMINATION POWER

| Item Number | Difficulty Index | Discrimination Index |
|---|---|---|
| 1. | $FV = \dfrac{30}{40} = 0,750$ | $D = \dfrac{9-5}{10} = 0,40$ |
| 2. | $FV = \dfrac{31}{40} = 0,775$ | $D = \dfrac{10-5}{10} = 0,50$ |
| 3. | $FV = \dfrac{32}{40} = 0,80$ | $D = \dfrac{10-6}{10} = 0,40$ |
| 4. | $FV = \dfrac{28}{40} = 0,70$ | $D = \dfrac{10-2}{10} = 0,80$ |
| 5. | $FV = \dfrac{35}{40} = 0,875$ | $D = \dfrac{10-8}{10} = 0,20$ |
| 6. | $FV = \dfrac{36}{40} = 0,90$ | $D = \dfrac{10-8}{10} = 0,20$ |
| 7. | $FV = \dfrac{28}{40} = 0,70$ | $D = \dfrac{9-3}{10} = 0,60$ |
| 8. | $FV = \dfrac{28}{40} = 0,70$ | $D = \dfrac{10-3}{10} = 0,70$ |
| 9. | $FV = \dfrac{28}{40} = 0,70$ | $D = \dfrac{7-3}{10} = 0,40$ |
| 10. | $FV = \dfrac{27}{40} = 0,675$ | $D = \dfrac{10-4}{10} = 0,60$ |
| 11. | $FV = \dfrac{28}{40} = 0,70$ | $D = \dfrac{9-6}{10} = 0,30$ |
| 12. | $FV = \dfrac{11}{40} = 0,275$ | $D = \dfrac{6-1}{10} = 0,50$ |
| 13. | $FV = \dfrac{11}{40} = 0,275$ | $D = \dfrac{5-2}{10} = 0,30$ |
| 14. | $FV = \dfrac{28}{40} = 0,70$ | $D = \dfrac{9-4}{10} = 0,50$ |
| 15. | $FV = \dfrac{33}{40} = 0,825$ | $D = \dfrac{10-6}{10} = 0,40$ |
| 16. | $FV = \dfrac{27}{40} = 0,675$ | $D = \dfrac{10-1}{10} = 0,90$ |
| 17 | $FV = \dfrac{34}{40} = 0,85$ | $D = \dfrac{10-7}{10} = 0,30$ |
| 18. | $FV = \dfrac{28}{40} = 0,70$ | $D = \dfrac{10-6}{10} = 0,40$ |
| 19. | $FV = \dfrac{28}{40} = 0,70$ | $D = \dfrac{10-6}{10} = 0,40$ |
| 20. | $FV = \dfrac{32}{40} = 0,80$ | $D = \dfrac{9-7}{10} = 0,20$ |

Formula :

$$FV = \frac{R}{N} = \frac{\text{correct answers}}{\text{number of testees}}$$

$$D = \frac{\text{correct U - correct L}}{n}$$

n = number of students in one group

The criteria of level of difficulty (Heaton: 1979):

| Index Difficulty(FV) | Interpretation |
|---|---|
| .00 - .14 | very difficult |
| .15 - .29 | difficult |
| .30 - .70 | acceptable |
| .71 - .85 | easy |
| .86 - 1.00 | very easy |

The criteria of discrimination power (Harris: 1969):

| Discrimination Index (D) | Interpretation |
|---|---|
| -1.00 until +.19 | low |
| +.20 until +.39 | satisfactory |
| +.40 until +1.00 | very effective |

# THE SUMMATIVE SCORE

| No. | TRY-OUT GROUP I-5 | EXPERIMENTAL GROUP I-8 | CONTROL GROUP I-3 |
|-----|-----|-----|-----|
| 1. | 6,1 | 6,3 | 5,9 |
| 2. | 6,0 | 6,8 | 7,4 |
| 3. | 6,8 | 8,9 | 5,0 |
| 4. | 7,4 | 7,5 | 6,6 |
| 5. | 5,4 | 7,4 | 5,1 |
| 6. | 7,1 | 5,8 | 7,6 |
| 7. | 8,5 | 7,1 | 8,4 |
| 8. | 8,8 | 8,9 | 5,7 |
| 9. | 4,1 | 9,2 | 8,2 |
| 10. | 6,6 | 8,4 | 6,0 |
| 11. | 7,0 | 7,3 | 6,0 |
| 12. | 5,2 | 5,3 | 5,9 |
| 13. | 6,2 | 5,4 | 6,7 |
| 14. | 6,7 | 7,1 | 7,0 |
| 15. | 8,3 | 5,0 | 6,4 |
| 16. | 2,5 | 5,1 | 5,8 |
| 17. | 7,1 | 5,1 | 5,5 |
| 18. | 6,6 | 6,0 | 5,0 |
| 19. | 5,8 | 4,1 | 7,1 |
| 20. | 7,0 | 5,8 | 7,3 |
| 21. | 6,5 | 8,4 | 6,3 |
| 22. | 6,0 | 7,6 | 7,4 |
| 23. | 8,8 | 8,8 | 7,4 |
| 24. | 3,8 | 4,3 | 4,7 |
| 25. | 6,9 | 3,4 | 5,6 |
| 26. | 8,0 | 4,2 | 6,1 |
| 27. | 8,8 | 7,5 | 8,4 |
| 28. | 6,8 | 6,3 | 5,4 |
| 29. | 4,5 | 5,8 | 8,8 |
| 30. | 7,5 | 5,1 | 5,5 |
| 31. | 8,7 | 5,3 | 7,7 |
| 32. | 5,4 | 6,7 | 6,1 |
| 33. | 4,7 | 6,8 | 5,9 |
| 34. | 8,3 | 6,2 | 7,6 |
| 35. | 7,6 | 4,7 | 5,1 |
| 36. | 9,7 | 7,3 | 7,0 |
| 37. | 7,6 | 4,1 | 5,7 |
| 38. | 7,9 | 4,3 | 8,1 |
| 39. | 6,5 | 7,0 | 6,2 |
| 40. | 8,1 | 6,4 | 6,1 |

# THE CALCULATION OF TWO MEANS TEST

| No. | CONTROL GROUP (I-3) | | TRY-OUT GROUP (I-5) | |
|---|---|---|---|---|
| | xA | $x^2A$ | xB | $x^2B$ |
| 1. | 5,9 | 34,81 | 6,1 | 37,21 |
| 2. | 7,4 | 54,76 | 6,0 | 36,00 |
| 3. | 5,0 | 25 | 6,8 | 46,24 |
| 4. | 6,6 | 43,56 | 7,4 | 54,76 |
| 5. | 5,1 | 26,01 | 5,4 | 29,16 |
| 6. | 7,6 | 57,76 | 7,1 | 50,41 |
| 7. | 8,4 | 70,56 | 8,5 | 72,25 |
| 8. | 5,7 | 32,49 | 8,8 | 77,44 |
| 9. | 8,2 | 67,24 | 4,1 | 16,81 |
| 10. | 6,0 | 36,00 | 6,6 | 43,56 |
| 11. | 6,0 | 36,00 | 7,0 | 49,00 |
| 12. | 5,9 | 34,81 | 5,2 | 27,04 |
| 13. | 6,7 | 44,89 | 6,2 | 38,44 |
| 14. | 7,0 | 49,00 | 6,7 | 44,89 |
| 15. | 6,4 | 40,96 | 8,3 | 68,89 |
| 16. | 5,8 | 33,64 | 2,5 | 6,25 |
| 17. | 5,5 | 30,25 | 7,1 | 50,41 |
| 18. | 5,0 | 25,00 | 6,6 | 43,56 |
| 19. | 7,1 | 50,41 | 5,8 | 33,64 |
| 20. | 7,3 | 53,29 | 7,0 | 49,00 |
| 21. | 6,3 | 39,69 | 6,5 | 42,25 |
| 22. | 7,4 | 54,76 | 6,0 | 36,00 |
| 23. | 7,4 | 54,76 | 8,8 | 77,44 |
| 24. | 4,7 | 22,09 | 3,8 | 14,44 |
| 25. | 5,6 | 31,36 | 6,9 | 47,61 |
| 26. | 6,1 | 37,21 | 8,0 | 64,00 |
| 27. | 8,4 | 70,56 | 8,8 | 77,44 |
| 28. | 5,4 | 29,16 | 6,8 | 46,24 |
| 29. | 8,8 | 77,44 | 4,5 | 20,25 |
| 30. | 5,5 | 30,25 | 7,5 | 56,25 |
| 31. | 7,7 | 59,29 | 8,7 | 75,69 |
| 32. | 6,1 | 37,21 | 5,4 | 29,16 |
| 33. | 5,9 | 34,81 | 4,7 | 22,09 |
| 34. | 7,6 | 57,76 | 8,3 | 68,89 |
| 35. | 5,1 | 26,01 | 7,6 | 57,76 |
| 36. | 7,0 | 49,00 | 8,7 | 75,69 |
| 37. | 5,7 | 32,49 | 7,6 | 57,76 |
| 38. | 8,1 | 65,61 | 7,9 | 62,41 |
| 39. | 6,2 | 38,44 | 6,5 | 42,25 |
| 40. | 6,1 | 37,21 | 8,1 | 65,61 |
| TOTAL | 259,7 | 1731,55 | 270,3 | 1914,19 |
| n | 40 | | 40 | |
| Mean | 6,4925 | | 6,7575 | |
| SD | 1,0795 | | 1,4990 | |

## TEST OF HYPOTHESES :

1. Ho : mA = mB, there is no difference between the means of groups.

   Ha : mA ≠ mB, there is a significant difference between the means of groups.

2. t-test, where df.f = nA + nB − 2 = 78

   t (.05/2) = ± 2,000

3. Calculation for t-observation (to) :

   <u>A</u> : Class I-3 (Control Group)

   $$\bar{x} = \frac{\sum x}{n} = 6,4925 \quad ; n = 40$$

   $$S = \sqrt{\frac{n\sum x^2 - \left(\sum x\right)^2}{n(n-1)}} = 1,0795$$

   <u>B</u> : Class I-5 (Try-Out Group)

   $$\bar{x} = \frac{\sum x}{n} = 6,7575 \quad ; n = 40$$

   $$S = \sqrt{\frac{n\sum x^2 - \left(\sum x\right)^2}{n(n-1)}} = 1,4990$$

   $$to = \frac{\bar{x}A - \bar{x}B}{\sqrt{\frac{(nA-1)S^2A + (nB-1)S^2B}{nA + nB - 2}\left(\frac{1}{nA} + \frac{1}{nB}\right)}} = -0,9073$$

4. Conclusion:

   Because / t observation / (to) = -0,9073 < t(.05/2)

   so Ho is accepted.

   Hence, we conclude that there is no significant difference between the means of group A and group B.

# THE CALCULATION OF TWO MEANS TEST

| No. | CONTROL GROUP (I-3) | | EXPERIMENTAL GROUP (I-8) | |
|---|---|---|---|---|
| | xA | $x^2A$ | xB | $x^2B$ |
| 1. | 5,9 | 34,81 | 6,3 | 39,69 |
| 2. | 7,4 | 54,76 | 6,8 | 46,24 |
| 3. | 5,0 | 25 | 8,9 | 79,21 |
| 4. | 6,6 | 43,56 | 7,5 | 56,25 |
| 5. | 5,1 | 26,01 | 7,4 | 54,76 |
| 6. | 7,6 | 57,76 | 5,8 | 33,64 |
| 7. | 8,4 | 70,56 | 7,1 | 50,41 |
| 8. | 5,7 | 32,49 | 8,9 | 79,21 |
| 9. | 8,2 | 67,24 | 9,2 | 84,64 |
| 10. | 6,0 | 36,00 | 8,4 | 70,56 |
| 11. | 6,0 | 36,00 | 7,3 | 53,29 |
| 12. | 5,9 | 34,81 | 5,3 | 28,09 |
| 13. | 6,7 | 44,89 | 5,4 | 29,16 |
| 14. | 7,0 | 49 | 7,1 | 50,41 |
| 15. | 6,4 | 40 | 5,0 | 25 |
| 16. | 5,8 | 33,64 | 5,1 | 26,01 |
| 17. | 5,5 | 30,25 | 5,1 | 26,01 |
| 18. | 5,0 | 25 | 6,0 | 36 |
| 19. | 7,1 | 50,41 | 4,1 | 16,81 |
| 20. | 7,3 | 53,29 | 5,8 | 33,64 |
| 21. | 6,3 | 39,69 | 8,4 | 70,56 |
| 22. | 7,4 | 54,76 | 7,6 | 57,76 |
| 23. | 7,4 | 54,76 | 8,8 | 77,44 |
| 24. | 4,7 | 22,09 | 4,3 | 18,49 |
| 25. | 5,6 | 31,36 | 3,4 | 11,56 |
| 26. | 6,1 | 37,21 | 4,2 | 17,64 |
| 27. | 8,4 | 70,56 | 7,5 | 56,25 |
| 28. | 5,4 | 29,16 | 6,3 | 39,69 |
| 29. | 8,8 | 77,44 | 5,8 | 33,64 |
| 30. | 5,5 | 30,25 | 5,1 | 26,01 |
| 31. | 7,7 | 59,29 | 5,3 | 28,09 |
| 32. | 6,1 | 37,21 | 6,7 | 44,89 |
| 33. | 5,9 | 34,81 | 6,8 | 46,24 |
| 34. | 7,6 | 57,76 | 6,2 | 38,44 |
| 35. | 5,1 | 26,01 | 4,7 | 22,09 |
| 36. | 7,0 | 49 | 7,3 | 53,29 |
| 37. | 5,7 | 32,49 | 4,1 | 16,81 |
| 38. | 8,1 | 65,61 | 4,3 | 18,49 |
| 39. | 6,2 | 38,44 | 7,0 | 49 |
| 40. | 6,1 | 47,21 | 6,4 | 40,96 |
| TOTAL | 259,7 | 1731,55 | 252,7 | 1686,37 |
| n | 40 | | 40 | |
| Mean | 6,4925 | | 6,3175 | |
| SD | 1,0795 | | 1,5186 | |

## TEST OF HYPOTHESES :

1. Ho : mA = mB, there is no difference between the means of groups.

   Ha : mA ≠ mB, there is a significant difference between the means of groups.

2. t-test, where df.f = nA + nB – 2 = 78

   t (.05/2) = ± 2,000

3. Calculation for t-observation (to) :

   A : Class I-3 (Control Group)

   $$\bar{x} = \frac{\sum x}{n} = 6,4925 \quad ; n = 40$$

   $$S = \sqrt{\frac{n\sum x^2 - \left(\sum x\right)^2}{n(n-1)}} = 1,0795$$

   B : Class I-8 (Experimental Group)

   $$\bar{x} = \frac{\sum x}{n} = 6,3175 \quad ; n = 40$$

   $$S = \sqrt{\frac{n\sum x^2 - \left(\sum x\right)^2}{n(n-1)}} = 1,5186$$

   $$to = \frac{\bar{x}A - \bar{x}B}{\sqrt{\frac{(nA-1)S^2A + (nB-1)S^2B}{nA+nB-2}\left(\frac{1}{nA}+\frac{1}{nB}\right)}} = 0,5940$$

4. Conclusion:

   Because / t observation / (to) = 0,5940 < t(.05/2)

   so Ho is accepted.

   Hence, we conclude that there is no significant difference between the means off group A and group B.

# THE CALCULATION OF TWO MEANS TEST

| No. | TRY OUT GROUP (I-5) | | EXPERIMENTAL GROUP (I-8) | |
|---|---|---|---|---|
| | xA | $x^2A$ | xB | $x^2B$ |
| 1. | 6,1 | 37,21 | 6,3 | 39,69 |
| 2. | 6,0 | 36,00 | 6,8 | 46,24 |
| 3. | 6,8 | 46,24 | 8,9 | 79,21 |
| 4. | 7,4 | 54,76 | 7,5 | 56,25 |
| 5. | 5,4 | 29,16 | 7,4 | 54,76 |
| 6. | 7,1 | 50,41 | 5,8 | 33,64 |
| 7. | 8,5 | 72,25 | 7,1 | 50,41 |
| 8. | 8,8 | 77,44 | 8,9 | 79,21 |
| 9. | 4,1 | 16,81 | 9,2 | 84,64 |
| 10. | 6,6 | 43,56 | 8,4 | 70,56 |
| 11. | 7,0 | 49,00 | 7,3 | 53,29 |
| 12. | 5,2 | 27,04 | 5,3 | 28,09 |
| 13. | 6,2 | 38,44 | 5,4 | 29,16 |
| 14. | 6,7 | 44,89 | 7,1 | 50,41 |
| 15. | 8,3 | 68,89 | 5,0 | 25 |
| 16. | 2,5 | 6,25 | 5,1 | 26,01 |
| 17. | 7,1 | 50,41 | 5,1 | 26,01 |
| 18. | 6,6 | 43,56 | 6,0 | 36 |
| 19. | 5,8 | 33,64 | 4,1 | 16,81 |
| 20. | 7,0 | 49,00 | 5,8 | 33,64 |
| 21. | 6,5 | 42,25 | 8,4 | 70,56 |
| 22. | 6,0 | 36,00 | 7,6 | 57,76 |
| 23. | 8,8 | 77,44 | 8,8 | 77,44 |
| 24. | 3,8 | 14,44 | 4,3 | 18,49 |
| 25. | 6,9 | 47,61 | 3,4 | 11,56 |
| 26. | 8,0 | 64,00 | 4,2 | 17,64 |
| 27. | 8,8 | 77,44 | 7,5 | 56,25 |
| 28. | 6,8 | 46,24 | 6,3 | 39,69 |
| 29. | 4,5 | 20,25 | 5,8 | 33,64 |
| 30. | 7,5 | 56,25 | 5,1 | 26,01 |
| 31. | 8,7 | 75,69 | 5,3 | 28,09 |
| 32. | 5,4 | 29,16 | 6,7 | 44,89 |
| 33. | 4,7 | 22,09 | 6,8 | 46,24 |
| 34. | 8,3 | 68,89 | 6,2 | 38,44 |
| 35. | 7,6 | 57,76 | 4,7 | 22,09 |
| 36. | 8,7 | 75,69 | 7,3 | 53,29 |
| 37. | 7,6 | 57,76 | 4,1 | 16,81 |
| 38. | 7,9 | 62,41 | 4,3 | 18,49 |
| 39. | 6,5 | 42,25 | 7,0 | 49 |
| 40. | 8,1 | 65,61 | 6,4 | 40,96 |
| TOTAL | 270,3 | 1914,19 | 252,7 | 1686,37 |
| n | 40 | | 40 | |
| Mean | 6,7575 | | 6,3175 | |
| SD | 1,4990 | | 1,5186 | |

## TEST OF HYPOTHESES :

1. Ho : mA = mB, there is no difference between the means of groups.

   Ha : mA ≠ mB, there is a significant difference between the means of groups.

2. t-test, where df.f = nA + nB − 2 = 78

   t (.05/2) = ± 2,000

3. Calculation for t-observation (to) :

   <u>A</u> : Class I-5 (Try Out Group)

   $$\bar{x} = \frac{\sum x}{n} = 6.7575 \quad ; n = 40$$

   $$S = \sqrt{\frac{n\sum x^2 - \left(\sum x\right)^2}{n(n-1)}} = 1,4990$$

   <u>B</u> : Class I-8 (Experimental Group)

   $$\bar{x} = \frac{\sum x}{n} = 6.3175 \quad ; n = 40$$

   $$S = \sqrt{\frac{n\sum x^2 - \left(\sum x\right)^2}{n(n-1)}} = 1,5186$$

   $$to = \frac{\bar{x}A - \bar{x}B}{\sqrt{\frac{(nA-1)S^2A + (nB-1)S^2B}{nA + nB - 2}\left(\frac{1}{nA} + \frac{1}{nB}\right)}} = 1,3041$$

4. Conclusion:

   Because / t observation ʹ (to) = 1,3041 < t(.05/2)

   so Ho is accepted.

   Hence, we conclude that there is no significant difference between the means off group A and group B.