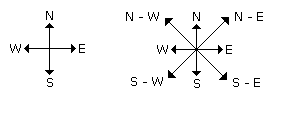
**DIRECTION FOR APTITUDE QUESTIONS:-**

****

**VERBAL COMMUNICATION:-**

Messages or information is exchanged or communicated through words is called verbal communication. Verbal communication may be two types: written and oral communication. Verbal communication takes place through face-to-face conversations, group discussions, counseling, interview, radio, television, calls, memos, letters, reports, notes, email etc.

**NON-VERBAL COMMUNICATION :-**

Non-verbal communication (NVC) is usually understood as the process of communication through sending and receiving wordless messages.

non-verbal communication is the exchanged of information or message between two or more persons through gestures, facial expressions eye contact, proximity, touching etc. and without using any spoken or written word

**GRAPEVINE COMMUNICATION :-**

grapevine is an informal, unofficial and personal communication channel or system that takes place within the organization as a result of rumor and gossip. It is a complex web of oral information flow linking all the members of the organization.

**EXPRESSIVE COMMUNICATION-**

Expressive communication involves sending a message to another person(s) to (a) make something happen or (b) stop something that is already happening. Children and youth who are deaf-blind are able to express themselves in many different ways.Jun 1, 2010

**Phatic communication:-**

Phatic communication is verbal or non-verbal communication that has a social function, such as to start a conversation, greet someone, or say goodbye, rather than an informative function

**Interpersonal communication:-**

Interpersonal communication is the process by which people exchange information, feelings, and meaning through verbal and non-verbal messages: it is face-to-face communication.

**Intrapersonal communication:-**

-It's "communicating with yourself".

Intrapersonal communication is a communicator's internal use of language or thought. It can be useful to envision intrapersonal communication occurring in the mind of the individual in a model which contains a sender, receiver, and feedback loop.

**Utilitarian communication:-**

Utilitarianism , at its most basic, states that something is moral, or good when it produces the greatest amount of good for the greatest number of people. It's a theory of normative ethics that asks whether a specific action is good or bad, moral or immoral.

**Diagonal Communication :-**

* Hierarchical bindings are removal (There is no hierarchy)
* Bonding between superior and subordinate
* Building relationship

**Mass Communication:-**

Exchange of informational large scale to a wide range of people

**Transpersonal Communication:-**

Communicating with dead person, spirit or ancestors.

**Upward Communication:-**

For example student communicate to principal

**Downward Communication:-**

For example Principal to student .

**Horizontal Communication:-**

For example communication among teachers. Information shared among the same hierarchical level.

**Dyadic Communication:-**

Dyadic Communication is a form of interpersonal communication that refere to the quantitative quality of a communication relationship between two people. It is also known as inter-personal communication.

Ref : http://navclasses.blogspot.com/2018/03/forms-of-communication-intrapersonal.html

**ARGUMENT**

**COGENT ARGUMENT :-**

Cogency is just like validity, but for conclusions that are probable, rather than guaranteed. If an inductive argument is well-structured, then believing that its premises are true means believing that its conclusion is probably true. Here is a cogent argument.

Premise 1: Every day that I have been alive, the sun has risen in the East and set in the West.

Conclusion: Tomorrow, the sun will rise in the East and set in the West.

**DEDUCTIVE ARGUMENTS:-**

An argument is said to be deductive if its conclusion is claimed to necessarily follow from its premises. That is, if it is claimed that since the premises are true or acceptable, the conclusion must also be true or acceptable, then the argument is deductive. We can also define deduction by saying that in a deductive argument, the logical relation between the premises and the conclusion is claimed to be 100% supporting.

1. All men are mortal. (premise)
2. Socrates was a man. (premise)
3. Socrates was mortal. (conclusion)

As you can see, if the premises are true (and they are), then it simply isn't possible for the conclusion to be false. If you have a deductive argument and you accept the truth of the premises, then you must also accept the truth of the conclusion; if you reject it, then you are rejecting logic itself.

**INDUCTIVE ARGUMENTS**:-

Inductive arguments are more modest when it comes to the inferential claim. It claims only that its conclusion probably follows from its premises. That is, the inferential claim is that since the premises are true or acceptable, the conclusion is likely to be true or acceptable. Put differently, the logical relation between the premises and the conclusion is claimed to be less than 100% supporting.

(i) Socrates was Greek. (premise)

(ii) Most Greeks eat fish. (premise)

(iii) Socrates ate fish. (conclusion)

In this example, even if both premises are true, it is still possible for the conclusion to be false (maybe Socrates was allergic to fish, for example).

* Particular statement to Universal statement

**HORIZONTAL LEARNING/STUDY** learning I meant that it is a process by which a person studies all most all the topic not in a deep manner but in a bird eye view

**VERTICAL LEARNING/STUDY**. I mean a process of learning about a particular thing or a group of thing in a deep manner. Not concentrating on totality the vertical learner will concentrate only on few things but in a deep manner,

A **CROSS-SECTIONAL** study involves looking at people who differ on one key characteristic (such as age) at one specific point in time. The data is collected at the same time from people who are similar on other characteristics but different on a key factor of interest such as age, income levels and geographic locations. Participants are usually separated into groups known as cohorts

For Ex:-Nine years old children are taller than 7 years old ones

**DEFINITION**

**A STIPULATIVE DEFINITION**:-

It is used to assign a new meaning to a term, whether or not the term has already got a meaning. If the stipulative definition is accepted, then the term is used in the new way that is prescribed. For example, suppose a stipulative definition is proposed to define "MBA" to mean married but available.

**PERSAUSIVE DEFINITION:-**

A persuasive definition is a form of stipulative definition which purports to describe the 'true' or 'commonly accepted' meaning of a term, while in reality stipulating an uncommon or altered use, usually to support an argument for some view, or to create or alter rights, duties or crimes.

**VARIOUS RESEARCH TYPES**

**Fundamental Research:-**

* Other names are Basic, Pure, Theoretical, Academic
* Expand already exisisting knowledge in specific area
* Not for an immediate application
* Generally used for Generalization, Theories, Principles, Laws
* Answer for what, why and How
* For exstensive, and social benefits

**Evaluation research-**

Evaluation research can be defined as a type of study that uses standard social research methods for evaluative purposes, as a specific research methodology, and as an assessment process that employs special techniques unique to the evaluation of social programs.

**Applied research-**

Applied research is a form of systematic inquiry involving the practical application of science. It accesses and uses some part of the research communities' (the academia's) accumulated theories, knowledge, methods, and techniques, for a specific, often state-, business-, or client-driven purpose.

**Research Sequence-**

Problem formulation, Hypothesis making, Development of a Research design, Collection of data, Data analysis and formulation of generalizations and conclusions

a) Identification of Research Problem

b) Listing of Research Objectives

c)Methodology

d) Collection of Data

e) Data Analysis

f) Results and Discussion

**The experimental method:-**

is a systematic and scientific approach to research in which the researcher manipulates one or more variables, and controls and measures any change in other variables.

**Descriptive Research Methods-**

they describe situations. They do not make accurate predictions, and they do not determine cause and effect.

There are three main types of descriptive methods-

**Observational Method-**

With the observational method (sometimes referred to as field observation) animal and human behavior is closely observed. There are two main categories of the observational method — naturalistic observation and laboratory observationCase Study Method

**Case study research-**

Case study research involves an in-depth study of an individual or group of indviduals. Case studies often lead to testable hypotheses and allow us to study rare phenomena. Case studies should not be used to determine cause and effect, and they have limited use for making accurate predictions.

**Survey Method**

In survey method research, participants answer questions administered through interviews or questionnaires.

**Descriptive RESEARCH-**

Most quantitative research falls into two areas: studies that describe events and studies aimed at discovering inferences or causal relationships. Descriptive studies are aimed at finding out "what is," so observational and survey methods are frequently used to collect descriptive data (Borg & Gall, 1989).

a. Experimental method. i. Using primary and secondary sources

b. Ex post-facto method ii. Questionnaire

c. Descriptive survey method iii. Standardized tests

d. Historical method iv. Typical characteristic tests

Codes :

a b c d

iii iv ii i

**Causal-comparative research :-**

Causal-comparative research, like correlational research, seeks to identify associations among variables. Causal-comparative research attempts to determine the cause or consequences of differences that already exist between or among groups of individuals.

**Descriptive Research:-**

Descriptive research is “aimed at casting light on current issues or problems. Descriptive studies are used to describe various aspects of the phenomenon. Descriptive research is used to describe characteristics and/or behavior of sample population.

**Historical Research:-**

One type of qualitative research is historical research, which involves examining past events to draw conclusions and make predictions about the future. The steps in historical research are: formulate an idea, formulate a plan, gather data, analyze data, and analyze the sources of data.

**Explanatory Research**

When we encounter an issue that is already known and have a description of it, we might begin to wonder why things are the way they are. The desire to know "why," to explain, is the purpose of explanatory research. It builds on exploratory and descriptive research and goes on to identify the reasons for something

Explanatory research looks for causes and reasons

**Quantitative Research**

- It is numerical, non-descriptive, applies statistics or mathematics and uses numbers.

- It is an iterative process whereby evidence is evaluated.

- The results are often presented in tables and graphs.

- It is conclusive.

- It investigates the what, where and when of decision making

**Qualitative Research**

- It is non-numerical, descriptive, applies reasoning and uses words.

- Its aim is to get the meaning, feeling and describe the situation.

- Qualitative data cannot be graphed.

- It is exploratory.

- It investigates the why and how of decision making

-Discover the underlying motives of human behaviour

**Inductive Research**

* Associated With theory generating

**Deductive Research**

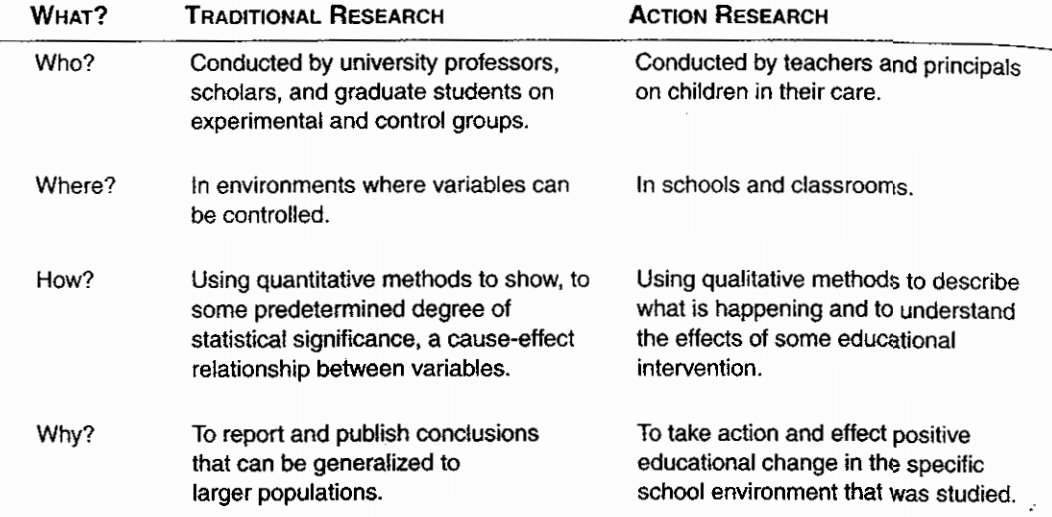
* Associated with theory testing

**Empirical Reasearch**

* Field work based research

**Developmental Research:-**

The purpose of developmental research is to assess changes over an extended period of time. For example, to assess the differences in academic and social development in low-income versus high-income neighbourhoods.



**A probability sampling** method is any method of sampling that utilizes some form of random selection. In order to have a random selection method, you must set up some process or procedure that assures that the different units in your population have equal probabilities of being chosen.

Example:-

1. Stratified Sampling 2. Cluster sampling 3. Representative Sampling
2. Random Sampling 5. Systematic Sampling

**Non-probability sampling** is a sampling technique where the samples are gathered in a process that does not give all the individuals in the population equal chances of being selected.

Example:-

1. Quota Sampling b) Snow ball sampling c) Convenience Sampling

d) Purposive Sampling

**STRATIFIED SAMPLING -**

Division of population on the basis of class, income, education level etc is called stratification and every member of each stratum has equal chance of being selected by the researcher. In this way characteristics of various strata are identified and studied.

**QUOTA SAMPLING -**

A researcher divides his population into certain groups and fixes the size of the sample from each group. It is called QUOTA sampling.

**CLUSTER SAMPLING:-**

A researcher wants to survey academic performance of high school students in Spain. He can divide the entire population (population of Spain) into different clusters (cities). Then the researcher selects a number of clusters depending on his research through simple or systematic random sampling.

**SNOWBALL sampling** (or chain sampling, chain-referral sampling)

is a non-probability sampling technique

**ROTE LEARNING:-**

Rote learning can be defined as a memorization technique based on repeating the material again and again till you get through with it and begin to memorize. The idea behind the rote learning is that one will be able to quickly recall the meaning of the material the more one repeats it.

**MEANINGFUL LEARNING:-**

meaningful learning method with the clear understanding of the subject.

**ACTIVE LEARNING:-**

Active learning is a process whereby students engage in activities, such as reading, writing, discussion, or problem solving that promote analysis, synthesis, and evaluation of class content.

**Signal Learning:-** A general response to a signal. Like a dog responding to a command. First invented by pavlov. It is a classical conditioning or pavlov conditioning.

**Stimulus-Response Learning:-** A precise response to a distinct stimulus. It is a operant conditioning developed by skinner.

**Chaining:**This is a more advanced form of learning in which the subject develops the ability to connect two or more previously-learned stimulus-response bonds into a linked sequence.

**Verbal Association**: This is a form of chaining in which the links between the items being connected are verbal in nature. Verbal association is one of the key processes in the development of language skills

**Discrimination learning**:- This involves developing the ability to make appropriate (different) responses to a series of similar stimuli that differ in a systematic way. The process is made more complex (and hence more difficult) by the phenomenon of interference, whereby one piece of learning inhibits another. Interference is thought to be one of the main causes of forgetting.

**Concept learning:-** This involves developing the ability to make a consistent response to different stimuli that form a common class or category of some sort. It forms the basis of the ability to generalise, classify etc.

**Rule learning.** This is a very-high-level cognitive process that involves being able to learn relationships between concepts and apply these relationships in different situations, including situations not previously encountered. It forms the basis of the learning of general rules, procedures, etc.

**Problem solving.** This is the highest level of cognitive process according to Gagn. It involves developing the ability to invent a complex rule, algorithm or procedure for the purpose of solving one particular problem, and then using the method to solve other problems of a similar nature.

**METHOD OF TEACHING**

**Project method OF TEACHING-**

INTRODUCTION Project method is one of the modern method of teaching in which, the students point of view is given importance in designing the curricula and content of studies. This method is based on the philosophy of Pragmatism and the principle of 'Learning by doing'. ... It demands work from the pupils. 3. DEFINITION.Mar 8, 2014

**buzz session method OF TEACHING-**

Selecting appropriate teaching/learning methods. Buzz sessions are short participative sessions that are deliberately built into a lecture or larger group exercise in order to stimulate discussion and provide student feedback.

**brainstorming session method OF TEACHING-**

Brainstorming is a large or small group activity that encourages students to focus on a topic and contribute to the free flow of ideas. The teacher may begin a brainstorming session by posing a question or a problem, or by introducing a topic. Students then express possible answers, relevant words and ideas.

**DISCUSSION METHOD OF TEACHING**

Discussion methods are a variety of forums for open-ended, collaborative exchange of ideas among a teacher and students or among students for the purpose of furthering students thinking, learning, problem solving, understanding, or literary appreciation.

**METHOD OF TEACHING:-**

**1. Analytic Method of Teaching**

\* It is derived from the word analysis, its means breaking up.

\* It leads to conclusion to hypothesis

\* It leads to unknown to known

\* It leads to abstract to concrete

**2. Synthesis Method of Teaching**

To synthesis is to combine the elements to produce something new. Actually it is reverse of analytic method.

\* It leads to hypothesis to conclusion

\* It leads to known to unknown

\* It leads to concrete to abstract

**3.Inductive Method of Teaching**

\* Particular cases to general rules of formulae

\* Concrete instance to abstract rules

\* Known to unknown

\* Simple to complex

**4. Deductive Method of Teaching**

\* General rule to specific instances

\* Unknown to known

\* Abstract rule to concrete instance

\* Complex to simple

**5. Heuristic Method:-**

The word ‘Heuristic’ means ‘I find’ or ‘I discover’ . This method implies that the attitude of students shall be that of the discoveries and not of passive recipients of knowledge.

According to H.E.Armstrong, “This is the method of teaching which places the pupils as far as possible in the attitude of a discoverer.”

According to westaway, “the heuristic method is intended to provide training in method. Knowledge is a secondary consideration altogether.

**6. Laboratory Method:-**

\* This method is based on the maxim “learning by doing.”

\* This is an activity method and it leads the students to discover mathematics facts.

\* In it we proceed from concrete to abstract.

\* Laboratory method is a procedure for stimulating the activities of the students and to encourage them to make discoveries.

\* This method needs a laboratory in which equipments and other useful teaching aids related to mathematics are available.

**7. Problem Solving Method:-**

The problem solving method is one, which involves the use of the process of problem solving or reflective thinking or reasoning.

\* Problem solving is a set of events in which human beings was rules to achieve some goals – Gagne

\* Problem solving involves concept formation and discovery learning – Ausubel

\* Problem solving is a planned attacks upon a difficulty or perplexity for the purpose of findings a satisfactory solution. – Risk,T.M

**METHOD OF SPEECH**

**IMPROMPTU SPEACH:-**

A speech that has no advanced planning or practice.

**EXTEMPORANEOUS SPEECH:-** It is a perfect balance.

This speech involves the speaker's use of notes and some embellishment to deliver a speech. To clear this up, a speaker who uses this method would have note cards or prompts that guide him from point to point, but he uses his own words as he goes along. What makes this different than an impromptu speech is that he has a loose guideline for his speech. He did not memorize anything; he just used cues to know where to go next

**MANUSCRIPT SPEACH :-**

The speaker reads every word from a pre-written speech.

**MEMORIZED SPEACH :-**

**METHOD OF TEST**

1. formative

2. summative

3. cumulative

4. diagnostic

**NORM-REFERENCED TEST(NRT)-**

Scores from norm-referenced tests are used to compare students’ progress to others in their peer group. This group may contain students in the same grade across the nation, or other categories such as special education, disability status, English learners, gifted students, and more. Most commonly, norm-referenced tests use a national peer group.

The key goal of these tests is to compare one student’s performance to others in a predetermined peer group. Students take an assessment. Teachers can then analyze their scores to learn more about the students’ performance

**Example:-** percentile

**CRITERION-REFERENCED TEST(CRT)-**

A criterion-referenced test is designed to measure a student's academic performance against some standard or criteria. This standard or criteria is predetermined before students begin the test. Schools or districts choose a standard, such as a percent of items answered correctly or a state test benchmark, as the criteria for the test. The student's score then shows the progress they have made toward the agreed-upon standard--if they fall short, they must continue to work toward the standard. An example: When you take your temperature, the accepted healthy standard is 98.6 degrees Fahrenheit. If your temperature is higher, you are not meeting the standard for health and are likely ill

In addition to criterion-referenced tests, teachers can also use norm-referenced tests in order to learn different things about their students’ progress.

**Example :-** 81% to 100% distinction

61% to 80% 1st class

50% to 60% 2nd class

**Types of Tests**

**Achievement test** -- a test which measures how much of a language someone has learned with reference to a particular course of study or program of instruction.

**Proficiency test** -- a test which measures someone's general level of language mastery.

**Standardized test** -- a test (a) which has been developed from tryouts and experimentation to ensure that it is reliable and valid, (b) for which norms have been established, and (c) which provides uniform procedures for administering and for scoring the test.

**Diagnostic test** -- a test which is designed to show what skills or knowledge a learner knows and doesn't know.

It aims to identify the strength and weakness of a students regarding the topics to be discussed.

**Prognostic test** -- a test which is designed to predict how well one is likely to do in a language course.

**Placement test** -- a test which is designed to place students at an appropriate level in a program or course.

**Discrete-point test** -- a language test which measures knowledge of individual language items, such as a grammar test which has different sections on tenses, adverbs, and prepositions.

**Integrative test** -- is a test which requires a learner to use several language skills at the same time, such as a dictation test, because it requires the learner to use knowledge of grammar, vocabulary, and listening comprehension.

**Criterion referenced test** -- a test which measures a student's performance according to a particular standard or criterion which has been agreed upon.

For example 90% are graded A. 80% are graded B.

**Norm referenced test** -- a test which is designed to measure how the performance of a particular student or group of students compares with the performance of another student or group of students whose scores are given as the norm.

For example, it is like UPSC, NET competative exam. Percentile in college.

**Summative Evaluation:-**

Carried out at the end of the course of instructions to determine the extent to which the objective has been achieved. It is same like annual exam.

**Quantitative Variable:-**

A variable is a quantity whose value changes. A discrete variable is a variable whose value is obtained by counting. A continuous variable is a variable whose value is obtained by measuring.

Lithosphere - litho referring to rocks and minerals

Hydrosphere - hydro referring to water

Biosphere - bio referring to life

Atmosphere - atmo referring to steam and vapour

**Workshop :-**

A workshop is a short term intensive course for a small group, emphasising problem solving or learning newer techniques.

**The Three Domains of Learning:-**

The committee identified three domains of educational activities or learning (Bloom, et al. 1956):

**Cognitive:-** mental skills (knowledge)

**Affective:-** growth in feelings or emotional areas (attitude or self)

**Psychomotor:-** manual or physical skills (skills)

**NAAC:-**

The National Assessment and Accreditation Council (NAAC) is an organization since 1994 that assesses and accredits institutions of higher education in India. It is an autonomous body funded by University Grants Commission of Government of India headquartered in Bangalore. In 2013, it has been proposed to start regional centers in universities so that they are close to the academic sphere. However, currently Bangalore is the only office for NAAC.

**ENVIRONMENTAL SCIENCE**

-**Greenhouse gases** include water vapor, carbon dioxide, methane, nitrous oxide, and ozone. Chlorofluorocarbons.

Fluorinated gases: chlorofluorocarbons, hydrochlorofluorocarbons, halons, Hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride are synthetic, powerful greenhouse gases

-Audible range of frequency for a human being is 20 Hz to 20 KkHz

- Gas leaked during Bhopal disaster is methyl isocyanate

**Tsunami** are waves caused by sudden movement of the ocean due to earthquakes, landslides on the sea floor, land slumping into the ocean, large volcanic eruptions or meteorite impact in the ocean.

**SMOG :-**

Smog is produced by a set of complex photochemical reactions involving volatile organic compounds (VOCs), nitrogen oxides and sunlight, which form ground-level ozone.

**LAHAR:-**

A lahar is a type of mudflow or debris flow composed of a slurry of pyroclastic material, rocky debris, and water. The material flows down from a volcano, typically along a river valley.

**DYSLEXIA:-**

slow or inaccurate reading, poor spelling, poor writing, or mixing up similar words.

**Mercury in our food :-**

Unfortunately a lot of fish and shellfish have high concentrations of mercury in their bodies, trapped in their fatty tissue. They absorb it from contaminated water and food like this:

Little fish eats mercury contaminated algae. Bigger fish eats little fish and absorbs the mercury from him, and so it goes until that fish ends up sitting in front of you on plate at the dinner table. This is called bio magnification.

**Fossil Fuels :-**

It is a non-renewable resource.

Eg. Coal, oil, natural gas, petroleum, liquified petroleum gas.

**ABBREVIATIONS:-**

NCTE – National Council of Teacher Education,

NAAC – National Accreditation and Assessment Council

**LEAP YEAR:-**

To determine whether a year is a leap year, follow these steps:

1.If the year is evenly divisible by 4, go to step 2. Otherwise, go to step 5.

2.If the year is evenly divisible by 100, go to step 3. Otherwise, go to step 4.

3.If the year is evenly divisible by 400, go to step 4. Otherwise, go to step 5.

4.The year is a leap year (it has 366 days).

5.The year is not a leap year (it has 365 days).

Another simple method:-

If any year divided by 4 without reminder its year known as leap year.

E.g: 2008/4 = 502 (no reminder)

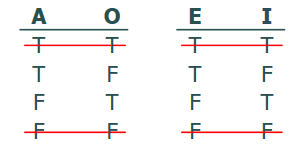
And in this year were 29 days in Feb.

**SQUARE OF OPPOSITION:-**

http://www.butte.edu/resources/interim/wmwu/iLogic/Table%20of%20Contents.html



**The Contradictory Relation:-**



Two statements are contradictory to each other if they cannot both be true and can not both be false.

1) A and O statements must have opposite truth value. The E and I statements must have opposite truth value. This means that we rule out the first and the last cases in the truth table.

2) If the A statement is true, then the O statement must be false. If the E statement is true, then the I statement must be false.

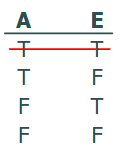
3) If the A statement is false, then the O statement must be true. If the E statement is false then I statement must be true

4) If the O statement is false, then the A statement must be true. If the I statement is false, then the E statement must be true.

5) If the O statement is true, then the A statement must be false. If the I statement is true, then the E statement must be false.

**The Contrary Relation:-**

Two statements are contrary to each other if they cannot both be true. The contrary relation exists between the A and E statements.



1) The A and E statements cannot both be true, that is, at least one of them must be false. According to this definition, we rule out the first case in the truth table.

2) If the A statement is true, then the E statement must be false.

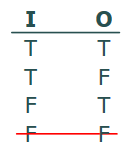
3) If the E statement is true, then the A statement must be false.

4) If the A statement is false, then the E statement can be either true or false. Therefore, its truth value is undetermined.?

5) If the E statement is false, then the A statement can be either true or false. Therefore, its truth value is undetermined.?

**The Subcontrary Relation:-**

Two statements are sub contrary to each other if they cannot both be false. But both can be true. The sub contrary relation exists between the I and O statements.



1) The I and O statements cannot both be false, that is, at least one of them must be true. According to this definition, we rule out the last case in the truth table.

2) If the I statement is false, then the O statement must be true.

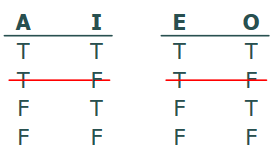
3) If the O statement is false, then the I statement must be true.

4) If the I statement is true, then the O statement can be either true or false. Therefore, its truth value is undetermined.

5) If the O statement is true, then the I statement can be either true or false. Therefore, its truth value is undetermined.

**The Implication Relation:-**

Implication is an important logic concept. If a statement p implies another statement q, then it cannot be the case that p is true, but q is false. Therefore, the implication relation rules out the second case in the truth table.



1) If the A statement is true, then the I statement must be true. If the E statement is true, then the O statement must be true.

2) If the A statement is false, then the I statement can be either true or false. If the E statement is false, then the O statement can be either true or false.

3) If the I statement is false, then the A statement must be false. If the O statement is false, then the E statement must be false.

4) If the I statement is true, then the A statement can be either true or false. If the O statement is true, then the E statement can be either true or false.

Lithosphere - litho referring to rocks and minerals

Hydrosphere - hydro referring to water

Biosphere - bio referring to life

Atmosphere - atmo referring to steam and vapour

***INDIAN LOGIC:-***

six ways of knowing

***1. Pratyaksha pramana***

- we got knowledge through perception. It can be direct or indirect

- Direct perception -> It takes place through sensory organ -> called ANUBHAVA

- Eg eye, ear, nose, skin, smell,touch, taste

- Indirect perception -> Knowledge based memory -> called smriti

***2. Anumana pramana***

- knowledge through assumption (in tamil anumanam)

***3. Upamana pramana***

- comparison of knowledge and get new knowledge. (in tamil uvamai)

***4. Arthapatti pramana***

- assumption and implications (in tamil arthathinpadi)

- it includes supposition(karpanai), beliefs and presumption

***5. Anupalabdhi pramana***

- It is based on apprehension of non existent thing which is based on non perception.

- Mainly used in negative statement.

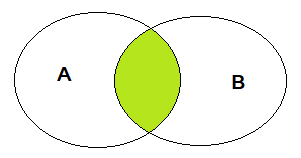
***6. Sabda pramana***

- We got knowledge through verbal statements, symbols, text or word.

- eg reading newspaper, watching television

**SYLLOGISM**

1. **SOME A ARE B**

****

From the above statement Definite conclusions are

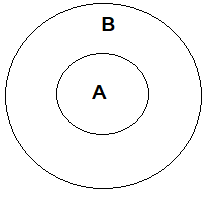
1. Some A are B
2. Some B are A

Wrong Assumptions are

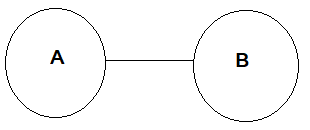
1. Some A are not B

Because we can’t say it may be in B or not

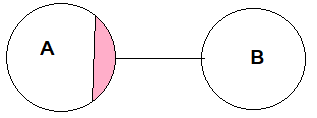
1. Some B are not A
2. **ALL A ARE B**

****

1. **NO A IS B**

****

1. **SOME A ARE NOT B**

****

**DATA INTERPRETATION**

Let us assume that A = 75 and B = 60 then

1. A is what percentage of B ? A / B \* 100
2. B is what percentage of A ? B / A \* 100
3. A is what percentage more than B? A – B / B \* 100
4. B is what percentage less than A? A – B / A \* 100

Ref <https://www.youtube.com/watch?v=5iNGew5hJDY>

1. A is what percentage more than B? A – B / B \* 100

It is similar to growth rate that is equal to

(Current value – Initial Value) / Initial Value \* 100