4. How do we know?

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Introduction

Human beings have been endeavoring to attain knowledge since the ancient times. Though, they have acquired a great amount of knowledge in the last thousands of years, their thirst for knowledge does not seem to be satiated. Actually, all living beings have the capacity to gain some kind of knowledge or other. It is essential for their living. But, the knowledge that different species acquire does not grow with time nor does it appear to be changing in a qualitative manner. However, the depth, extension and subtlety of human knowledge keeps on growing in the course of time. The process of adding to the already accumulated knowledge happens continuously.

We have been observing that it's the awareness of awareness that distinguishes humans from other living beings. Due to this two-layered awareness, man does not merely have knowledge like other living beings but also is aware of having knowledge. That is why, the concept of 'knowledge' itself can become an object of knowledge for him. We experience that pets such as dogs and cats have an instinctive as well as experience-based knowledge of where to find their prey or which place is dangerous for them. But, do they ever face questions such as "How do I have this knowledge? What do I need to do in order to make this knowledge more precise?" This does not seem to be the case. Humans however have been raising these and many such questions for last hundreds of years.

As we have seen last year, the branch of philosophy called epistemology studies many such questions critically in a detailed manner. What is knowledge? What is the difference between knowledge on the one hand and other related concepts such as opinion, conviction, belief, information on the other? What are the sources or means of knowledge? How can knowledge be justified? What is truth? In this lesson, let us get acquainted with the way in which many such questions have been considered in both the Indian and the Western tradition.

Indian Epistemology

We do not use the word 'knowledge' in a very precise way in the daily life. We use the term knowledge to refer to our opinions, convictions and beliefs also. We use that word even to denote whatever has been introduced to us, whatever we are acquainted with or whatever we think we understand. From the perspective of philosophy, this usage of the word is not always appropriate because there is a difference between thinking that we have knowledge and actually having knowledge. What we 'think', we 'understand' need not be true. If it is not true, it will not be correct to call it knowledge. Philosophy is interested in the knowledge that qualifies the test of truth. It is the means and types of such knowledge, that Philosophy wants to study.

'Prama' is a word that is used in Indian Philosophy for this kind of knowledge that qualifies the test of truth. The word 'Dnyana' (knowledge) is used for whatever we comprehend or understand. We come to know the world by way of using many means such as sense perception, reason, memory, testimony etc. But, the world always is not exactly the way we feel, see or understand it.

Let's Talk!

Make a list of various examples of knowledge. Find out which one of these can be qualified as prama, i.e. true knowledge. Discuss the different examples in groups.

We have learnt in the previous year that what seems to be the case, may not actually be the case, "Appearances are deceptive." But in the Indian tradition, even if it has not been examined whether, whatever has been understood is true or false, it is still called dnyana (knowledge). If its truth is established after scrutiny, it is called 'Prama'. To have 'prama' is to know the object as it is, without any error. The person who attains prama is called 'Pramata'. The means through which knowledge is gained is called 'Pramana'. 'Prameya' is the object that is known.

On the basis of our initial discussion regarding the difference between non-human beings and human beings, it can be said that all the living beings other than humans also have knowledge in the sense of Dnyana because they perceive through senses. But only humans can assess whether the knowledge gained is correct or incorrect, true or false. That means only human beings can attain prama. All the living beings can be called knowers (dnyata), but only human beings can be called pramata. Humans can acquire prama on the basis of their organic, intellectual and linguistic abilities by way of using various means or pramanas such as sense perception, inference, testimony etc.

Pramana

The consideration of pramanas is at center of the epistemology in Indian tradition. The objective of attaining prama cannot be achieved unless appropriate means of knowledge are used. That is why, in the Indian tradition one finds an in depth analysis of questions such as what are the means through which prama can be attained? What is the number of such means? What is their nature? etc.

The concept of pramana is much deeper than it appears to be. 'Pramana is a means to attain prama', is one of the meanings of the term praman. In addition, there are at least two more meanings that the term has. According to one of these meanings, pramana is a kind or a type of prama. This sense of the concept of pramana is accepted by the Bauddha and Jain darshana. According to them we cannot differentiate between the means of knowledge and their product in the process of knowledge acquisition. Instead, if we classify the knowledge that we gain, on the basis of differences in the nature of instances of knowledge, we would more clearly understand what knowledge is. The types of knowledge or prama that we get through such classification are also called pramanas. The Jain and Bauddha darshana tend to believe that the pramana accepted by the Indian tradition; such as perception, inference, testimony are not only means of prama but also types of prama.

The third sense of the term pramana is evidence or proof, justification or the assurance of the authenticity of knowledge. Even in our ordinary conversation in Marathi, when we ask the question 'what is the pramana for your argument?', we are trying to understand what is the evidence for that assertion. We want to know whether it is true or false. This basic meaning of the term pramana is connected to both the meanings stated above. When we say that pramana is an instrument of prama, it means a reliable or an authentic instrument with the help of which prama can be attained. When we say that pramana is a type of prama, it means it is a type of reliable or authentic knowledge.

Let's do!

Prepare a concept-map explaining different meanings of the term pramana.

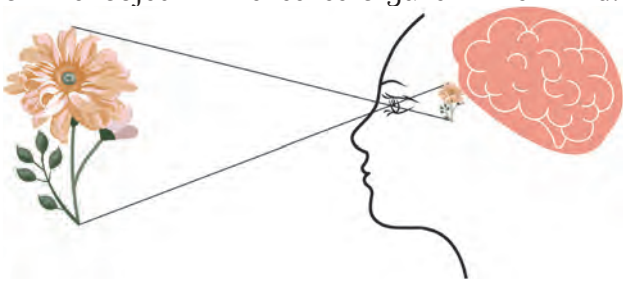
Nyaya Darshana's View of Pramana

Nyaya darshana has a very important place in the Indian understanding of pramanas. The concepts such as dnyana, prama, aprama, pramana etc. were very systematically put forth initially by the Nyaya philosophers. Let us try to briefly understand their views about pramana.

According to Nyaya view, knowledge illuminates the objects of knowledge in the manner in which a lamp illuminates objects in the world. At a gross level, knowledge is divided into two types viz. experience or presentative cognition (Anubhava) and memory or representative cognition (Smruti). We have a direct awareness or understanding of the object in experience, while understanding through memory is in the form of remembering the experience. Both these types of knowledge are further classified into 'Yathartha' (true and valid) and 'Ayathartha' (erronous). In yathartha knowledge, the object is known as it is actually is when the object is not known as it is, it is called ayathartha knowledge. Knowledge which is presentative and valid is called prama. Non-valid presentative knowledge is called aprama. Nyaya darshana propounds that prama is gained through four means, namely, perception (pratyaksha), inference (anumana), comparison (upmana) and testimony (shabda). Let us get acquainted with these four pramanas now.

Perception (Pratyaksha)

Pratyaksha or perception refers to the sensations that we receive through our sense-organs. We receive the sensations of colour, sound, taste, smell and touch, respectively through the five sense-organs namely, eyes, ears, tongue, nose and skin. We also receive the sensations of pleasure and pain through the mind. This is called perception. Of all the pramanas, this is the primarily important pramana which is accepted by all the darshanas. As per one of the definitions that Nyaya darshana offers, pratyaksha dnyana is a determinate, non-erroneous and true knowledge attained through the contact between sense-organs and the object. Nyaya darshana believes that soul is the knower, who gets knowledge through the chain consisting of the object - the sense-organs - the mind.



We get the sensations of perceptible objects and their characteristics like colour, appearance, texture, taste, smell etc. through specific sense-organs. It is necessary to be attentive to or be aware of the object that we want to know directly. There can be no knowledge if our mind does not pay attention to the object. For example, when we study with full concentration, though we hear certain sounds that fall on our ears, we do not understand them, because we are not paying attention to them. That is, a contact between the ears and the sound takes place, but our mind is elsewhere. It is not connected with the ears in the real sense. Thus it is the function of the mind to pay attention to the specific object of knowledge. Knowledge through sense-experience is a matter of common experience for us.

Let's do!

Prepare the chain of the connections in the process of knowledge for the object 'book'.

Nyaya darshana has systematically classified pratyaksha pramana, in its in-depth exposition of the same. The main classification of pratyaksha is made into two types, namely, 'ordinary' (laukika) and 'extraordinary' (alaukika). Ordinary perception consists of all the knowledge of objects that we attain through our five sense-organs and the mind. The knowledge of the objects that do not

fall within the range of the experience of the sense-organs is gained by way of extraordinary means. That is why it is called extraordinary perception. Ordinary perception is further classified into the external and the inner or mental perception. External perception is the perception through eyes, nose, ears, skin and tongue; while the knowledge attained by the mind is inner perception. The mind according to Nyaya, is an internal organ. We get the knowledge of pleasure, pain, attachment, aversion etc. through this inner organ.

Extraordinary perception is divided into 'Samanyalakshana pratyasatti', 'Dnyanalakshana pratyasatti' and 'Yogajlakshan pratyasatti'. An attribute that is commonly present in many objects of the same type is called a commonality or a universal (samanya). Nyaya darshana believes that when we experience a flower, we do not merely know that particular flower, but also the universal 'flowerness'. Through this universal, we acquire a universal knowledge of flowers in the form 'I know what a flower is'. Nyaya darshana believes that this knowledge is attained through samnyalakshana pratyasatti. Similarly, when we see the half-ripe tamarind, we know that it would taste sweet and sour, without actually testing it. We, of course, cannot come to know the taste of anything using our eyes, yet we have such knowledge due to dnyanalakshan pratyasatti. In a like manner, it is believed that a 'Yogi' has knowledge of the past, the present and the future. Obviously, it is not possible to have this knowledge by way of sense-perception. It is said that the yogi has this knowledge through yogajlakshana pratyasatti.

Let's do!

Find out the examples of extraordinary perception. Prepare posters of these examples in groups.

Inference (Anumana)

Though, it is true that a large part of our knowledge consists of knowledge gained through sense-perception, it is equally true that all our knowledge is not acquired through it. That is why, there is a need for other means of knowledge too! One of the important means among these is logical reasoning. By using logical reasoning in our day-to-day life as well as in science, we attain knowledge of the things that cannot be experienced by the sense-organs. In a closed auditorium, when a door is opened a little, we smell the fragrance of the soil and tell the person sitting next to us that it has started raining, without actually seeing the rain. When we observe that the particles of iron are being attracted by an object, we conclude that there is magnetic power in that object. Inference or anumana is the logical judgement about that which cannot be directly experienced, on the basis of that which can be directly experienced.

The term 'Anumana' literally means "knowledge that follows some other knowledge". What we experience, is a mark or indication of what we do not experience. The pug-marks that we find on the trails in the forest indicate which animals have earlier walked on those paths. The famous example of inference that Nyaya darshana offers is as follows : When we see smoke on a hill, we infer that "there is fire somewhere on the hill", because smoke is an indication of fire. In short, we can say that inference is the knowledge of the unknown on the basis of the known.

There are three constituents of the process of inference, namely, paksha, hetu and sadhya. That which we infer or reason about, is called the sadhya. The place or the site with reference to which we derive the existence of the sadhya, is called the paksha. That on the basis of which we prove the existence of the sadhya, is called the hetu. Hetu is the link that connects the paksha and the sadhya. In the example above, the hill is the paksha, where there is smoke which is the hetu. We prove the existence of fire on the basis of

the hetu 'smoke'. Fire is the sadhya in this example.

'Pakshadharmata' is the existence of the hetu in paksha. The relation of being associated with one-another that exists between the hetu and the sadhya is called the 'Vyapti'. We will not be able to infer the existence of the sadhya from the existence of hetu, if the hetu is not always associated with the sadhya. Smoke is generated through fire. Smoke cannot exist without fire. There is a relation of universal concomitance (vyapti) between the smoke and the fire. "Wherever there is smoke, there is fire" is a statement indicative of the vyapti relation.

Let's think!

Find out other examples of inference and identify the paksha, hetu and sadhya in those examples.

If you minutely consider the process of inference, you will realize that it is a complicated process. It begins with knowing through pratyaksha that the hetu is on paksha. Then, we remember the relation of vyapti between the hetu and the sadhya that we have experienced or known previously. We infer the existence of sadhya on the basis of the actually experienced pakshadharmata and the memory of the vyapti relation between the hetu and the sadhya.

The Nyaya darshan has a very extensive as well as indepth understanding of inference. One of the points that needs to be noted amongst its reflections on inference is that it views inference both as a source of knowledge as well as a way of argumentation. When a person himself or herself comes to attain prama with the help of inference, it is called the 'inference for the self' ('Svarthanumana'). Here, inference is obviously a source of knowledge. We also use inference as an argument in order to prove our conclusion to the other person. This type of inference is called 'inference for the sake of the other' ('Pararthanumana').

Pararthanumana

Nyaya darshana has systematically analyzed Pararthanumana into five elements. These five elements are 'Pratidnya', 'Hetu', 'Udaharana', 'Upanaya' and 'Nigmana'. In order to prove that "there is fire on the hill", pararthanumana is used in the following manner :

(1) Pratidnya : There is fire on the mountain.
(2) Hetu : Because there is smoke on the mountain.
(3) Udaharan : Wherever there is smoke, there is fire, as in the kitchen.
(4) Upanaya : There is smoke on the mountain.
(5) Nigamana : Therefore there is fire on the mountain.

Upamana (Comparison)

Upamana pramana refers to the knowledge gained with the help of resemblances. We use upamana pramana when we come to know a new i.e. previously unknown object on the basis of the way it resembles some other already known object. What is important here is not the number of aspects that resemble each-other but whether the existing resemblance is significant or not.

'Upamiti', that is the knowledge attained through upamana is based on comparison. According to the Nyaya understanding, upmana is a comparison between a term or a word and the object that it refers to. Do you remember the description of the giant squirrel that you have read in the previous year? When a person who knows that a giant squirrel is an animal which is like a squirrel but is bigger than the squirrel, see the giant squirrel for the first time, that person will know that the animal being percieved is a giant squirrel. That person will have this knowledge through the coming together of various factors such as the description of a

giant squirrel by a knowledgeable person, the animal perceived, recollection of that description and the comparison based on all these. It is not possible to have such knowledge merely on the basis of perception or memory. That is why Naiyayikas consider upmana to be an independent pramana.

Let's write!

Collect different examples of upamana like the one of gaint squirrel and classify them into groups.

Shabda (Testimony)

We constantly use words while speaking and writing. But have you ever thought what exactly is a 'word'? We all know that a word is made from letters. But, is the word merely a group of letters? Is the word the sound that the ears hear when it is pronounced or the marks/figures that are seen on the paper while reading? Of course not. If, somebody starts speaking to us in a language not known to us, we do 'hear' the words, but say that we have not 'understood a word'. You must have 'seen' the pictorial script of the Chinese language, but can you 'read' it? Not really, right? This is so because a word is not just a sound or a mark. Word is that important element of language, which is meaningful. Mere sound or a mark is not a word - word has meaning. A sentence is generated when many meaningful words come together in a specific manner. A great part of our knowledge consists of the knowledge acquired by way of the words that are heard and read. However it must be remembered that we do not attain prama through every sentence that we have read or heard. We have already seen that prama is true knowledge.

Let's do!

Collect the examples of the incorrect or false news or information given by the media and discuss the bad consequences that it has on the society.

Obviously, if the words that present falsehoods to us, cannot be called 'pramana', i.e. means of prama. It is for this reason that Nyaya darshana has propounded that shabda is the statement of an 'Apta'. The word apta here does not mean a relative as it ordinarily means in Marathi or Hindi, but it means a reliable person. 'Apta' is a person who is knowledgeable and trustworthy. Such person is neither ignorant nor a liar. That is why this person is reliable. One can attain prama on the basis of the words of such a person. In this era of the tremendous influence of media, especially social media, it is extremely important to remember the definition of the term 'apta'. It is necessary to check whether whatever reaches us through the media is trustworthy or not and it is equally necessary to think whether we ourselves are reliable and knowledgeable as users of media. We would learn to use the media responsibly if we keep these points in mind.

The conditions of meaningfulness of a sentence:

Although, a sentence is generated through meaningful words, this is not enough for the meaningfulness of the sentence itself. The Nyaya philosophers present four conditions that need to be fulfilled by a sentence for it to be meaningful. These four conditions are as follows :

(1) Akanksha : Generally, complete meaning cannot be expressed through a single word. For that a word has to get connected with other words. Suppose, the teacher tells you in the class, "Write", you would naturally ask, "What should we write?" When the teacher says, "Write what is the relation between a word and its meaning", then it becomes a complete, meaningful sentence. In order to be meaningful, the anticipation that a word has

for other words is called 'Akanksha'.

(2) Yogyata : There is not only a need for many meaningful words to form a meaningful sentence, the words must be properly related with each-other. Meaning cannot be produced through contradictory words. The sentence, "The fire is cool like ice" does not mean anything as it does not bring coolness and fire together in an appropriate manner.

(3) Sannidhi : Sannidhi means nearness, proximity. In order for meaning to be generated through many different words; they must be spatially and temporarilly near each-other. If, while conversing with each-other we pronounce the words with the gaps of a few minutes, meaning cannot be produced even if the earlier two conditions are fulfilled. Similarly, if we write words separately in different lines, they will not be able to generate meaning.

(4) Tatparya : Sometimes some words have more than one meaning. In order to determine what such a word means in a particular sentence, one has to take into account what is the intention of the speaker or what meaning is expected by the speaker. The context in which the word has to be used is important for this purpose. For example, if somebody says 'this is not fair', then the word 'fair' has to be taken as 'just or right' in this context. Fair also means lighter colour of hair or skin or a country celebration. But these shades of meanings do not apply in the above-mentioned sentence.

Let's write!

Write a critical essay on "Reliability of the media" and present it in the class.

Naiyayikas have also offered some classifications of shabda. The words that give us knowledge of the perceptible objects are called 'Drushtartha'. The words that give us knowledge of that which cannot be seen are called 'Adrushtartha'. According to another classification, words are classified into two kinds, namely, 'Vaidika' and 'Laukika'. According to Nyaya darshana, the words in the vaidika literature are 'Apaurusheya'. They are not written by any human being. They are true and infallible. Laukika words are the words of the human beings and they can be either true or false. That is why all words cannot be treated as pramanas. Only the words in the Veda and the laukika words of apta are called pramana.

Let's find out!

Think - Share - Pair

Find out sentences which fulfill the conditions of meaningfulness. Ask your friend to examine them and then together present the examined sentences in front of the class.

In the previous year, we had noted the fact that every darshana accepts different number of pramanas. Let us briefly get acquainted with the two more pramanas that Mimamsa darshana accepts apart from the four accepted by Nyaya.

Postulation (Arthapatti)

Sometimes there is an inconsistency between two known things. For example, we may have never seen one of our friends studying during the entire day. We think that she is going to score very low marks in the examination. Actually, she gets very good marks. There is apparently an inconsistency between not studying and scoring high marks. But, this apparent inconsistency can be explained

by saying that she must have been studying regularly in the night. After knowing this, the inconsistency is removed. The knowledge that we attain by way of removing the inconsistency between two known things, thus, is the way of 'Arthapatti' as a means of knowledge.

Non-perception (Anupalabdhi)

All the pramanas seen so far give us the knowledge of the existing things or about the existence of certain things. However, the pramana known as Anupalabdhi gives us the knowledge of the non-existence or the absence of some object. For example, we go in the college canteen to meet a friend, but after reaching there realize that he is not there. If he would have been there, we would have seen him. But, we cannot 'see' his not being or his absence. Yet, we know it because of the pramana known as anupalabdhi.

Let's do!

Collect more information about pramanas and discuss whether upmana, arthapatti and anupalabdhi should be considered independent sources in a Vadasabha.

The discussion of pramanas is at the center of Indian epistemology. Considering the fact that the prameya, can be known through pramanas, it is important to reflect over pramanas even in order to know what does the universe consist of. We can see here the inter-relation between epistemology and metaphysics. We find that there is inter-dependence between how many and which pramanas a particular darshana accepts and its metaphysical position.

Epistemology in the Western Tradition

The complex inter-relationship between epistemology and metaphysics can be seen in the Western tradition too! The metaphysical question 'what is' was central in this tradition at the beginning. However, in order to know what is or what is not, one has to inevitably turn to the question how do we know it?

In the course of the development of Western Philosophy, it was only in the period of modern Philosophy that epistemology occupied a central place. However, the reflection over the sources of knowledge had begun in the pre-Socratic era. Parmenides propounded that 'the universe is permanent and eternal and that change is an illusion', while Heraclitus insisted that 'impermanence is the nature of the universe and permanence is an illusion'. However, both of them agreed on one point : the knowledge based on sense-perception is illusory, reality can be known only by way of reason.

The scepticism that the sophists advocated was a consequence of the mutually inconsistent views about the nature of reality presented by the philosophers. The sophists did not believe in the potential of human capacities to gain knowledge. That is why they propounded scepticism, which is a theory that doubtes the very possibility of objective knowledge. The argument of the sceptic is that due to the inherent limitations of human perception and reason, the nature of what is real cannot be known as it is. They not only believed that human beings can know the world only within the limits of their capacities but also that every individual can know the world within the limits of his or her own individual capacities. For this reason, they also accepted relativism which says that 'knowledge is relative to the individual who knows'. It is in this context that Protagoras' quote "Man is the measure of all things" is famous.

It should be remembered that Western epistemology is by and large constituted in and through the attempts to refute scepticism and relativism.

Let's talk!

Present scepticism and relativism in the form of a dialogue in the class.

An excellent example of this is Plato's

position about knowledge. Knowledge must be true i.e. it must be of 'what is'. Plato firmly believed that knowledge has to be objective, infallible, universal and true at all times. His epistemological position is closely connected with his metaphysical theory of the world of forms. Plato's awareness of the fact that unless the objects of knowledge are unchangeable and eternal, knowledge cannot be true for all times, is at the root of this theory. The definition of 'knowledge as justified true belief' was established through Plato's scrutiny of knowledge in which he asserted that knowledge is not just perception, nor an opinion or a mere belief.

The Concept of Knowledge

When a person claims to know something, that claim should be examined before being accepted. The definition of knowledge mentioned above provides the criteria with which such a claim needs to be examined. Knowledge is expressed through propositions. A proposition is a sentence which has truth value. The sentences that can be either true or false are said to have truth value. The criteria that the definition of knowledge includes are applied to a proposition that expresses knowledge. If the proposition fulfils those criteria, then, it gets the status of knowledge, otherwise, it is treated as a mere belief or conviction.

Let's find out!

Find out the sentences that are not propositions i.e. that do not have truth value and classify them. Take the help of rules of grammar for the classification.

The claim of knowledge is put forward by saying, "I know P'. Here, 'P' is a symbol of a proposition. For example, "I know that there are rings around Saturn". Let us see when this knowledge claim can be accepted as being appropriate. We must firmly believe in something that we claim to know. It is self-contradictory to say that I know that there are rings around Saturn, but I do not believe it. It can be said that though knowledge is objective, belief is the subjective aspect of knowledge.

You, of course, know that to believe in something, is not to know it. If, someone believes that Saturn is the planet nearest to earth, it is not knowledge, since it is not true. Knowledge can never be false. Therefore, the second criterion of knowledge is truth. We will consider the criteria on the basis of which we determine whether a particular proposition is true or false in the next section.

Note the difference between the way in which the term 'Knowledge' is used in the Indian and the Western tradition. We use the word 'Dnyana' in Marathi, as a substitute for the word 'Knowledge' in English. Dnyana can be either true or false according to the Indian tradition. As per the Western tradition, a belief can be true or false, but knowledge has to be true. The term 'false knowledge' is contradictory. The western concept of knowledge is similar to the Indian concept of 'Prama'. Prama has to be true. There is nothing like 'false prama' (Asatya prama).

Justifiability, the third criterion of knowledge indicates that in order to accept that a person knows something, it is not enough that the person believes in it and that the belief is true. It is essential to justify that belief. It should be possible to provide evidence for the truth of the belief. Suppose, we ask the person who believes that there are rings around Saturn, how does he know it and that person says that he has seen it in a dream, then we are definitely not going to say that he has knowledge. A knowledge claim is unacceptable, if a true belief cannot be justified properly. A justification is proper if it follows an objective method. If one's reason for considering one's belief to be true is one's dream, this reason is subjective or personal. This is not an objective justification. A justification is objective when it provides evidences which can

be examined by anyone.

When we are considering the issue of the justification of konwledge, it is not sufficient to merely observe the relation between a fact and a statement expressing knowledge but it is also necessary to take into account the interrelation among the statements expressing knowledge. For a system of knowledge both the truth and validity are important. If a statement in a system of knowledge is inconsistent with the other statements in the same system then the construction of a system of knowledge would become difficult. In logic, therefore, the process of thinking is presented in a form of argument. Premises and conclusion, are the two parts of an argument

In a sense, the discussion about objective justification is a discussion of the sources of knowledge. It has to take into account what is the source or means through which one comes to know something and whether that source is appropriate or not. Before taking up the discussion of the sources of knowledge in the Western tradition, let us discuss the three theories of truth that offer criteria for truth.

Let's do!

Considering the criteria of knowledge, prepare a concept-map of the criteria with examples in groups. Organize an exhibition of these in the class.

Theories of Truth

You must have noted that the concept of truth is central in the definition of knowledge that we have seen above. Although, knowledge is expressed through propositions, every proposition does not express knowledge. A proposition is an assertive sentence. If the assertion is correct, then, the proposition is true and only true propositions can express knowledge. Since, truth is a pre-condition of knowledge, the question 'What is truth?' is very important for epistemology. Three different theories propose three different criteria in order to answer this question.

The Correspondence Theory of Truth

According to this theory, a proposition is true, when there is a correspondence between the proposition and the state of affairs it describes. The proposition 'Gangtok is the capital of Sikkim' describes the actuality correctly, so this proposition is true. The truth of a proposition is related to the situation it describes. The proposition is false if it does not describe the situation as it actually is. The proposition 'Venus is a star' is false according to this criterion, as Venus is actually a planet.

Knowingly or unknowingly, we use this criterion in our daily life many a times. Someone comes and tells us that 'there is a notice on the notice board that tomorrow is a holiday for the college'. Since, you have a suspicion, you go and check the notice board and find out that there is no such notice put up. You get angry at the friend for lying. In the fields of science also the criterion of correspondence is very important. Science uses the methods of observation and experimentation precisely in order to know whether the proposition describes the reality accurately or not.

Let's discover!

Find out the examples of the correspondence criterion of truth from daily life.

This criterion is quite close to the ordinary understanding of when should a proposition be accepted as true. However, due to certain lacuna in the theory, some objections are raised against this theory.

It is not every time possible to check the relation between the proposition and the state of affairs. The propositions about the past or the future cannot be checked in this way, as what they describe does not exist in the present. We cannot tell today, whether a proposition such as 'After hundred years there will be an

ice age on the earth' corresponds to the state of affairs it describes. Similarly, it is not possible to say whether general propositions are true or false. The proposition 'All men are mortal' is applicable to all humans in past, present and future. We cannot examine its truth using this criterion. The laws in science are general statements which are true. But, their truth cannot be established with this criterion. The propositions in logic and mathematics are said to be formal. They do not describe the empirical world, but express logical or mathematical relations. Obviously, the criterion of correspondence is not applicable to them.

Coherence theory of truth

According to correspondence theory of truth, the truth of a proposition depends on its relation with reality. In contrast, the coherence theory of truth propounds that the truth of a proposition is dependent on the relation it has with other propositions. The system of knowledge is constructed by putting together many true propositions. The knowledge of any particular subject is not just an aggregate or a group of true propositions. Knowledge is a system of those propositions. All these propositions are consistently related to each-other. A proposition, the truth value of which is to be tested, is said to be true if it is consistent with other accepted truths in that particular field of knowledge. If there is a proposition which says that if a number 'X' is multiplied by zero, the number you get is 'X', then this proposition is false. This is so because, it is not consistent with the accepted truth in mathematics that if you multiply any number by zero, the resulting number is always zero. If someone tells us that the birth year of my mother is 1995 and that of my father is 1993 and I am born in 1990, then, we will obviously conclude that the last statement is false. It is not consistent with the earlier two statements (which we assume to be true), as no one is born before the birth of his or her parents. These examples bring it to our notice that consistency or coherence is a significant criterion of truth.

Some problems arise with respect to this criterion too. Even if a system of mutually coherent propositions is created, how can we be assured that it is true? Have you read stories of Harry Potter or seen movies based on them? Fictitious stories like these, whether they are fairy tales or science fictions, are internally coherent, yet not true. Why is this so? Because, these stories do not fit to reality or actuality. In empirical sciences alongwith consistency, correspondence to reality is also important. Without such correspondence, the propositions that claim to describe reality can never be true.

Let's watch!

Watch movies based on completely consistent but untrue fantasy stories and discuss them with reference to the correspondence and the coherence theory of truth.

Pragmatic theory of truth

This theory of truth is quite different from the other two. According to this theory, a proposition is true, when an action based on it is successful, when it attains its desired effect. That means the truth of a proposition is not dependent on the relation it has to reality or to other propositions. It is dependent on the consequences of the act based on the proposition. If, the action brings forth a useful or beneficial result then the original proposition is true. But, if the action based on the proposition is unsuccessful then the proposition is false. On observing a bottle full of a colourless liquid if someone says, 'This is water', one way of determining whether this statement is true or false is to drink that liquid. If it quenches thirst, only then the proposition is true, not otherwise. Knowledge is used in the actual process of living. Pragmatism gives importance to this usefulness of knowledge. The experimental method of science is also

based on this perspective that if a proposition is true, it must be possible to perform the action based on it successfully. For example, in order to assess the truth of a statement that this liquid is an acid, a litmus paper is put into it. If the expected effect of the liquid changing its colour is obtained, then, the proposition is judged to be true.

The main problem that arises about this theory is that even if a belief can lead to an action giving rise to the expected result, the success of an action does not assure the truth of the proposition. When a group of students goes for mountaineering, a novice gets tired and starts saying, 'I cannot walk any further and I will wait here'. If someone tells him that it is dangerous to wait on this spot as the wild animals come here frequently, then, that student walks till the destination out of fear. However, the proposition 'wild animals come here frequently' cannot be judged to be true on the basis of the effects of the action based on that proposition. It can be a lie that is expected to motivate the student to keep walking. Of course, such a trick may not be successful every time. So, when this proposition results into expected consequence, it will have to be judged as true and when it fails to obtain the desired consequence it will have to be judged as false. That means, if, we accept the pragmatic theory, truth cannot be objective, it will be relative to the person or the situation.

Let's do!

Present in the class the events in which propositions cannot be proved to be true in spite of getting the desired effects, in the form of a drama.

It is clear from the consideration of the theories of truth that although each theory brings to light one important aspect of truth, none of them is perfect and flawless. That is why none of the theories offer a complete understanding of truth. In reality, different systems of knowledge that exist in different fields, correspond with reality, the propositions that they consist of are consistent with each-other and they give rise to successful actions too. That is why rather than focusing on any one aspect, one must reflect over truth in a holistic manner.

Sources of knowledge

Having understood the concept of knowledge and theories of truth in the Western tradition; let us get acquainted with the sources or means of knowledge discussed in this tradition. As we have noted earlier, epistemology was truly established in Europe after renaissance. This was the period of a stunning growth and development of science. Science had established new standards of a knowledge of the empirical world. Prior to this period, no theory, opinion or viewpoint was unanimously agreed upon in the field of philosophy. The truths discovered by science were however universal, true for all times and objective. There was no room for relativity in them. The philosophers, while acknowledging this new type of knowledge, undertook a deep study of the process of knowledge and its means.

Reason, sense perception, memory, intuition, testimony all can be considered as sources of knowledge, as we have observed last year. In the Western tradition, however, reason and sense perception have a central place in the period of modern philosophy. In fact the two main trends of modern philosophy are known as rationalism and empiricism. These two trends are generally considered as being opposite to each-other. There are fundamental differences between them with respect to the question whether the basic source of knowledge is reason or sense-perception. What is the exact place/ precise role of reason and sense-perception in the process of knowledge? Which one of them is primary? What is the nature of the knowledge that emerges from them? These types of questions were discussed during this period. All this discussion took place on the background of the progress of science as well as that of scepticism which was popular at that time. The philosophers in this period were trying to refute scepticism. They wanted to establish

the possibility of objective knowledge by way of analyzing the process of knowledge. A critical analysis of the source of knowledge that can produce objective knowledge was therefore important. In this context, one of the major points of difference between rationalism and empiricism was whether all knowledge can be obtained through sense-experience or whether reason can attain knowledge without being associated with experience.

Let us understand this point with reference to a particular classification of knowledge. The classification was used primarily in this very period. Knowledge that can be gained prior to or before any experience, is called "a priori" knowledge. Knowledge that is attained after experience or on the basis of experience is called "a posteriori" knowledge or empirical knowledge. According to rationalism, knowledge primarily emerges from reason. Knowledge begins with reason. Reason has the capacity to know certain truths prior to or without sense-experience. Due to this belief rationalists accept the possibility of a priori knowledge. Empiricists however completely deny such a possibility since according to them all knowledge of the empirical world is based on sense-experience. Reason cannot know anything independent of sense-experience. For them knowledge is a posteriori or empirical.

Before getting better acquainted with these two trends, let us note that the word 'experience' in this discussion denotes sense-experience. Experiences can be of various kinds. But the type of experience that is discussed as a source of knowledge is the experience that we get through sense-organs.

Let's talk!

Discuss the instances of that which we call experience, but which are not sense-experience in the class.

Another point that has to be kept in the mind is that the difference of opinion between rationalism and empiricism is regarding the primacy of the source of knowledge. Both these trends accept that reason and experience both have a significant place in the process of knowledge. Rationalists think that knowledge begins with reason and experience starts functioning after that, while the empiricists propound that knowledge emerges through experience and then reason processes it.

Rationalism

Rene Descartes, Benedict Spinoza and Goftfried Wihelm Leibniz are known as the rationalists. While being introduced to Descartes' method of doubt last year, we have noted that Descartes wanted to prove that scepticism is completely wrong. He tried to discover an indubitable truth for this purpose. Descartes himself was a scholar not only of Philosophy but also of mathematics and science. The method of mathematics had influenced him a lot. The truths in mathematics are objective and universal. These truths do not change with respect to place, time, culture or individual. Rationalists considered mathematics to be an ideal kind of knowledge. They believed that if the method of mathematics is used in other branches of knowledge, it would be possible to attain the same kind of knowledge in these branches also.

One of the peculiarities of mathematical truths is that they are not derived from experience. They are not based on experience. Their truth cannot be proved on the basis of experience. The source of mathematical knowledge is reason and it can be justified only on the basis of reason. In contrast, the knowledge gained through experience is often relative to time, situation and person. In the previous year, we have seen many examples of this. Empirical knowledge cannot be certain and universal due to this relativity. That is why, as a source of certain, universal and objective knowledge the rationalists attributed greater importance to reason. Let us understand the view of the rationalists regarding the precise role of reason in the process of knowledge with reference to

Descartes' views on the same.

Descartes was of the opinion that there are some inborn, ideas in the mind of all humans. These ideas are called 'innate ideas'. This means that these ideas are not obtained from sense-experience. Therefore their truth is not dependent on experience. They give us knowledge that is certain. The three major examples that Descartes gives of such ideas are those of one's own existence, the existence of God and the existence of matter. We have seen how Descartes proves the existence of the self by using the method of doubt. We understand the truth of the statement 'I think, therefore I am' in a clear and unambiguous manner. Clarity and distinctness are the characteristics of true statements. The proposition, 'All sides of the square have equal length'; makes the concept of a square very clear and at the same time makes us realize that a rectangle cannot be called a square. That is, it clearly explains the distinctness or the difference of a square from a rectangle.

Let'sdiscover!

Find out the examples of concepts used in day to day life, which would help us to identify and comprehend the original and at the same time will point out its difference from other concept, e.g. when we understand the concept of the colour red, we also comprehend that red colour is neither pink nor blue.

The method that Descartes proposes for attaining such truths is similar to the geometrical method. Just as theorems are proved on the basis of the axioms in geometry, every proposition must be proved to be indubitable and certain in other fields of knowledge too. However, for this purpose, one must not begin with axioms, since the axioms are assumed to be true. It is necessary to begin with noncontroversial, indubitable truths themselves. Such truths are self-evident. They do not require an external justification.

Let's Talk!

Find out in group discussion the examples of propositions that are indubitibly true like the proposition "I think therefore I am" and discuss them in the class.

'I think, therefore I am' is such a self-evident truth. We know this and other such truths through intuition. Descartes believes that a system of knowledge consists of truths known by way of intuition and the ones that can be demonstrated on the basis of such truths. Descartes does not wish to indicate any mystical or spiritual capacity or experience by the term 'intuition'. For him intuition is a sort of direct revelation or knowledge that reason has. Knowledge is produced on the basis of such intellectual intuition and deductive proof. Sense-experience is always of a particular object, characteristic, relation or event. But, it is reason that provides general or universal principles necessary for making sense of it. Descartes believed that reason starts functioning before experience of any kind, on the basis of the innate ideas and thus, we acquire knowledge in an a priori manner.

Descartes' views were supported and further substantiated by Spinoza and Leibniz. Spinoza argued that in principle, all knowledge is attained through reason. He of course did acknowledge the limits of human reason. But he was of the opinion that if these limits would not have been there, everything could have been known through reason alone. Leibniz put forward the view that it's not only the ideas of the existence of the self or God that are innate, but all mathematical or logical principals are also innate to the human mind. He believed that if this would not have been the case, then it would have been impossible to think in a logical manner. He thought that in a sense all knowledge is innate.

In this entire tradition of rationalism, a

subordinate place has been given to experience.

Let's think!

Do you find any problem with Leibhiz's view, 'All knowledge is in a sense innate?' Discuss in the class.

Empiricism

John Locke, Bishop Berkeley and David Hume are the three philosophers who advocated empiricism. Empiricists deny the possibility of a priori knowledge, as they firmly believe that knowledge cannot be produced without experience. Knowledge is produced from the data or information that is provided by the sense-organs, afterwards reason processes it. Without experience, there is nothing available for reason to process, that is why reason alone cannot give us knowledge of the world. They are of the opinion that sense-organs connect our consciousness to the external world and unless such a connection is established, it is not possible to know the world.

Locke rejected Descartes' notion of innate ideas completely. In his opinion there are no ideas that are present in the minds of all human beings at the time of birth. For example, the idea of God does not seem to be inherent in the minds of the children. They learn it in the process of socialization. Atheists deny the existence of God. Moreover, those who believe in the existence of God, differ from each-other about his nature.

Locke argues that at the time of birth, prior to any experience mind is a 'tabula rasa', that means a clean slate. It is that kind of slate on which no letters/alphabets have left their marks. It is only through experience that alphabets start appearing on it. This means that all ideas found in the mind originate in experience. Ideas about the surrounding world are created through the sensations that we receive from the five sense-organs, whereas the ideas about the inner world are created through the experiences of the mind. Sense perception and introspection are the fundamental sources of knowledge. At the beginning of the process of knowledge, mind is inactive or passive. It only receives the ideas from these sources. Once, the ideas are received, the mind becomes active and starts processing them. It understands the inter-relation among the ideas. The external and the internal sensations as if provide the raw material needed for the production of knowledge. Knowledge is produced after reason processes them. Locke's view that the knowledge attained through experience must be justified on the basis of experience itself, is consistent with the method of science today.

Another very significant point regarding Locke's epistemology is his opinion that we can know the qualities, relations and actions of objects, but we can never have a direct knowledge of the substance underlying all of these. If, we analyze the experience of the pen in front of us, we realize that the actual experience is of the colour, shape, texture etc. of the pen. We do not experience anything called 'pen' beyond all these. Of course, we do believe that all these are the characteristics of the pen, but there is no empirical ground for this belief. We believe it on the basis of reasoning.

Locke divides the qualities of the object into primary qualities and secondary qualities. Since, the existence of colour, shape, smell, taste, texture and sound is dependent on their being experienced, Locke calls them secondary qualities. The knowledge of these qualities also changes from person to person. As against this, the qualities such as size, solidity and mass are in the object. Therefore, he calls them primary qualities. These primary qualities can be known in an objective manner, since their existence does not depend upon their being experienced. However, the primary qualities can be known through the secondary qualities only. This means that whatever knowledge of the world we have, we can have a direct experience of secondary qualities only.

Let's do!

Prepare a concept-map based on the characteristics of an object. Consider different objects as examples.

The ideas produced from this experience alone are the objects of our direct experience. We can never directly know the substance which is supposed to be beyond all the qualities, as we do not directly experience it any time. In spite of this, Locke accepts the existence of the substance.

The second empiricist philosopher Berkeley goes a step ahead of Locke and states that to accept the existence of anything that cannot be experienced is not consistent with the epistemological position of empiricism. Berkeley argues that since the knowledge of the primary qualities is also through the secondary ones, the knowledge of primary qualities is also subjective. Only the ideas that are experienced and the mind that experiences them are real. There is no epistemological support to accept the existence of what cannot be experienced. Berkeley therefore rejects the existence of the material substance. In his opinion, the objects that we experience are nothing but a collection or group of ideas. A material substance which is supposed to be the basis of all the characteristics that we experience does not exist.

We have acquainted ourselves with some of the ideas of the third empiricist David Hume in some of the earlier lessons. Now, let us understand his epistemological point of view which is the foundation of those ideas. Like Locke and Berkeley, Hume also argues that all ideas are generated through experience. He classifies our experience into impressions and ideas. Through sense-perception different impressions are created in our mind. The mind generates ideas on the basis of these impressions. However, mind does not use only experience for generating ideas. Many a times, it is also influenced by the power of imagination. Using this power, mind combines two or more ideas which are never actually experienced together and creates a new idea. An excellent example of this is the idea of a 'golden mountain'. We do experience gold and mountain, but none of us has ever seen a golden mountain. Yet, the mind can imagine a golden mountain. Through such examples, Hume explains that there need not always be something corresponding to or denoted by the ideas in our mind. That is why, it is essential to examine the ideas in the mind in a rigorous manner.

Hume has classified objects of knowledge into two kinds – Relations of ideas and Matters of fact. The first type consists of the ideas created by reason itself. Their truth is not based on experience but is justified by reason. This kind of knowledge is necessary, universal and certain. Its truth is not dependent on any external conditions and is accepted by everyone at all times. Mathematics and Logic are the examples of this kind of knowledge. The second type of knowledge is about the facts in the external world. Experience is the fundamental source of this knowledge. The nature of experience changes with relation to place, time and person. Therefore this knowledge is not certain. Its truth is not necessary, but only probable. Scientific knowledge is of this type. Scientific truths are probable not necessary.

The idea of causation and the idea of self, fall under the category of matters of fact. It has to be examined whether all the ideas in this category originate from experience in order to assess the truth and justifiability of this kind of knowledge. Hume is of the opinion that if those ideas do not emerge from experience, they should not be given any place in the system of knowledge. Hume firmly asserts that if there are no corresponding impressions in the mind for certain ideas, then, such ideas are epistemologically worthless and must be discarded. You should understand Hume's critical analysis of the idea of causation and that of self, on this background. Hume goes one step ahead of Berkeley and rejects reality not only of the material substance, but also of the spiritual substance i.e. the soul. He also denied that there

is a necessary relation between cause and effect. Hume is called a sceptic because he has raised doubts about the possibility of the knowledge of certain and necessary truths pertaining to the external world. Of course, Hume's scepticism is called mitigated or sober since Hume accepts the mathematical and logical truths as certain; which means that he does not totally reject the possibility of certain knowledge.

The limits of rationalism and empiricism

The journey of epistemology that started with Descartes in modern philosophy, reaches a certain stage in Hume. Hume's sceptical position brings it to our notice that though this journey began with the objective of eliminating skepticism permanently, it is very difficult to reach that objective. The inter-connections between epistemology and metaphysics that we observed in the context of Indian Philosophy are seen here too. Rationalism puts forth the possibility of certain and indubitable truths but it could not successfully explain how the truths gained through reason alone can give us the knowledge corresponding with the external world. As we have seen, the examples of such truths are mathematical and logical truths. But, these truths do not tell us anything about the world. This observation in a way supports the empiricist's view-point that the knowledge of the external world has to be attained through experience. However, the development of empiricism once again led to scepticism. It was firmly established because of Hume's critical analysis of knowledge, that empirical knowledge is only probable and it cannot be necessarily true. Knowledge gained through reason is certain but there is no guarantee that it corresponds with the external world and the knowledge of the external world that is gained through experience can never be certain. Such was the predicament that was generated in epistemology.

Immanuel Kant's 'Critical philosophy' was developed through the attempt to respond to this crisis. By offering critique of rationalism and empiricism Kant proved that knowledge cannot be produced unless reason and experience are conjoined in a proper manner. Reason provides the form or the pattern /structure of knowledge, while experience fills it up with content. Knowledge is created through the inter-connected constitution of form and content. It is true that mere sense-perception cannot generate knowledge unless it is arranged in a pattern provided by reason, but it is also equally true that reason cannot know the universe without being provided empirical content by sense-experience. This is how Kant explained the interdependence of reason and experience. Kant's analysis of the process of knowledge is quite close to the research that is going on in this connection in neurology today.

The Scientific perspective

We saw how epistemology has been discussed in philosophical tradition. It must be noted, that when philosophers were contemplating epistemological issues, they were doing it without the tools that present day science uses to investigate. Their reflections stemmed from personal experience, introspection and broader knowledge of the world. Science is the study of objective reality that is verifiable to anyone and everyone who wishes to verify. What does science tell us about how we gain knowledge?

When we look at the process of acquiring knowledge in scientific manner, we see that knowledge for individual and knowledge for society are two different things. Science is a collective effort of studying the laws of nature that govern objective reality by using tools and instruments. From the point of view of scientific knowledge, it is immaterial how a person understands it with his senses. For example, our sensory knowledge would never tell us about the behaviour of an atom. Collective knowledge and tools of experimentation helped us to overcome the limitations of individual capacity to gain knowledge.

How do biology and neuroscience study

the process of knowledge acquisition? They study how sensations are received and what follows in the body with the help of experiments and instruments. It is also important to note that since life has emerged from the non-living world, the laws of physics which govern the material world are also applicable to the living world. How is knowledge acquisition explained at the level of physical sciences? The answer is: It is through sense-organs that we receive sensations of different particles. We see because of photons. (photon is a name of a particle) Hearing, smell, taste, and touch; all the senses are dependent on particles. Since particles are always dispersing from each-other, theoretically they do not reach us without any loss or distortion. Thus any claim of exact knowledge of reality is unscientific.

The same principle also applies to accuracy in measurements with the help of tools and instruments. Accurate measuring requires calibration and standardization. Since we do not know anything faster than the speed of light, we have to accept the limits of the tools of measurement of its speed.

With referance to the method of science, one sees that, science does not claim to know the 'ultimate reality' as it is. Science adopt the language of probability while accepting any proposition or system as 'knowledge'. For example, when we say gravity is a law we are actually saying that it is highly probable that such a force exists. It is only when we accept this highly probable statement as a reality that it becomes possible to conduct objective experiments with it or to develop a technological application based on it.

Glossary

Prama – प्रमा
Dnyana – ज्ञान
Pramata – प्रमाता
Pramana – प्रमाण
Prameya – प्रमेय
Dnyata – ज्ञाता
Anubhava – अनुभव
Smruti – स्मृती
Yathartha – यथार्थ
Ayathartha – अयथार्थ
Pratyaksha – प्रत्यक्ष
Anumana – अनुमान
Upmana – उपमान
Shabda – शब्द
Laukika – लौकिक
Alaukika – अलौकिक
Samanyalakshana – सामान्यलक्षण
Dnyanalakshana – ज्ञानलक्षण
Yogajlakshana – योगजलक्षण
Pratyasatti – प्रत्यासत्ती
Yogi – योगी
Paksha – पक्ष
Hetu – हेतू
Sadhya – साध्य
Pakshadharmata – पक्षधर्मता
Vyapti – व्याप्ती
Svarthanumana – स्वार्थानुमान
Pararthanumana – परार्थानुमान
Pratidnya – प्रतिज्ञा
Udaharan – उदाहरण
Upanaya – उपनय
Nigamana – निगमन
Upamana – उपमान
Upamiti – उपमिती
Apta – आप्त
Akanksha – आकांक्षा
Yogyata – योग्यता
Sannidhi – संनिधी
Tatparya – तात्पर्य
Drushtartha – दृष्टार्थ
Adrushtartha – अदृष्टार्थ
Vaidika – वैदिक
Apaurusheya – अपौरूषेय
Arthapatti – अर्थापत्ती
Anupalabdhi – अनुपलब्धी

EXERCISES

Q.1 Fill in the blanks choosing the correct option from the bracket.

(1) In Indian Philosophy, knowledge that qualifies the test of truth is called .....

(Dharana, Prama, Smruti)

(2) According to Nyaya Darshan human ..... is the knower.

(Atma, Jiva, Experience)

(3) According to relativism knowledge is ..... .

(real, subjective, illusionary)

(4) Descartes wanted to prove that ..... is wrong.

(Rationalism, Pragmatism, Scepticism)

Q.2 Give philosophical terms for the following.

(1) That which is known.

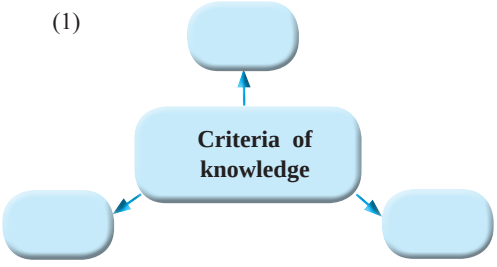
(2) A person who is knowledgable and trust-worthy.

(3) Determinate, non-erroncous and true knowledge attained through the contact between sense-organs and the objects.

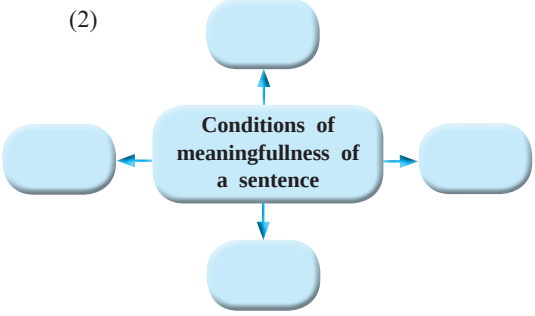
(4) Inference/Argument used in order to prove a conclusion to someone other than oneself.

Q.3 Complete the concept-map/flow-chart.

(1)



(2)



Q.4 Explain the following statements with examples.

(1) Clarity and distinctness are the attributes of true proposition.

(2) Without sense-experience knowledge is not possible.

(3) Belief is not knowledge.

Q.5 State with reason whether the following statements are true or false.

(1) Only human beings can be called as Pramata.

(2) An inference which is used as argument for others is called Swarthanumana.

(3) According to correspondence theory of truth all the propositions are consistent with one-another.

(4) According to correspondence theory of truth all statements are coherent with each-other.

(5) Berkeley denies the existence of matter.

Q.6 Distinguish between the following.

(1) Swarthanumana - Pararthanumana.

(2) Rationalism - Empiricism.

(3) Primary and secondary qualities.

Q.7 Discuss in detail 'Inference' in Nyaya Darshan.

Q.8 State the pragmatic theory of truth and explain its drawbacks with examples.

Q.11 Write a dialogue on the following.

Write a dialogue on the following- logical consistency in fictional works such as a movie or a fairy tale viz a vis objective reality

Activity

Collect additional information about 'how do we learn' and present a poster exibition offering information about theories of learning.

☆☆☆