UNTI 4 KEY ISSUES IN PHILOSOPHY OF SCIENCE

Contents

4.0 OBJECTIVES

The unit tries to dwell on the key issues in philosophy of science such as induction, observation, perception, hypotheses, generalization which are very crucial in understanding the issues in philosophy of science.

4.1 INTRODUCTION

Philosophy of science is interpreted as a critique of science. Another interpretation is that it is an inductive metaphysics. The third interpretation is that it is a pragmatic of science. As a critique of science it analyses the language of sciences; the semantics and syntax of scientific language is analysed. As an inductive metaphysics, it uses the inductive method of science, but unlike science it focuses on the study of transcendental entities also. The key issues in philosophy of science include scientific method, discovery of theory in science, structure and validation of scientific theory and scientific explanation. As pragmatics of science philosophy of science tries to relate the findings of the scientists to the human welfare and upliftment.

4.2 DISCOVERY OF THEORY OF SCIENCE

The philosophy of science considers the various sciences as finished products of a historical process. The historical order of development is determined by curiosity, accident, or the pressure of necessity. Science explains, while philosophy tries to understand. All scientific theories can be traceable to the acceptance of four matters of facts: That something exists; that something can be known; that there is something which matters; and that something makes sense and can be reflected upon. The above four matters of fact correspond to four branches of philosophy; Ontology or the theory of being, deals with what exists; Epistemology or the theory of knowledge, deals with what can be known; the theory of value, sometimes called axiology; Logic. Since scientific knowledge is empirical, there

are three problematic steps to be examined; the step from any experience at all to experience of a world of one's own; the step from experience of that world to knowledge of it; and the step from knowledge of that world to knowledge of a world in common.

4.3 PERCEPTION, THOUGHT AND LANGUAGE

In order to understand the transition from experience to knowledge, it is necessary to put oneself in a position of experiencing. For this purpose Edmund Husserl recommended a process called 'bracketing'; this means for getting all that one has learned in order to take an unprejudiced look at what is presented. Phenomenologically the objects perceived are intentional objects. The world of phenomena reveals the properties, configurations, process, sequences etc., of the objects perception. Perception means a grasping of something through the senses (perception = sensation + interpretation). However the perceptual experience of the world is incomplete because of the limitations of our sense organs. Any scientific theory is structured on the basis of this incomplete sense data. Thought is a mechanism for the synthesis of al full world out of the bits and pieces of experience. It is regarded as a second convenient hypothesis (the external world was the first). Concepts are a set of hypothetical entities which correspond to percepts. Concepts function through recognition, identification, and representation. Concepts have ontological status. They also evoke a habit of expectations. They are functional entities. Any language has the following three essential ingredients; the sign, the thing of which it is the sign and the person to whom it is a sign of that thing or in other words sign, object and the interpreter. A set of signs having understood meanings constitutes a language. The realms corresponding to object, sign and interpreter are percept, term and concept which can be connected in the following way;

All languages begin as ordinary languages, under the pressure of the immediate necessity of communication. Some percepts have corresponding concepts and terms. But it is possible to have some terms and concepts without corresponding percepts. The language of science is a standard language. It has its own special vocabulary, referring to particular kinds of obejcts and process. A language which is being used to talk about the world is called an object language. The language which we use to discuss this first language is then called a meta-language. For instance, the sentence, "The sentence, 'Copper Sulphate is solvable' is a metalinguistic philosophic remark mentioning a scientific sentence (belonging to the object language) which actually says something about Copper Sulphate.

The Correlation of Perception, Thought and Language

Starting from perception science proceeds to the construction of conceptual schemes whose order reflects the order of perception and links these with specialized languages for the purposes of making predictions. Language thought and percept can stand alone. In the condition of awareness, in our aesthetic experience we are able to concentrate on perception to the exclusion of language and conceptual thought. In logic two systems are said to be isomorphic if every element of one system can be matched with a unique element of the other and vice versa. A rule linking thought and perception can be found in concept formation – it is the rule which covers the use of language for the expression of thought and the description of perception. A rule linking thought and perception

can be found in concept formation – it is the rule by which perception stimulates thought and thought recognizes and represents objects of perception. In the correlation of perception, thought and language the following kinds of relation are relevant; logical and grammatical relations in language, spatial and temporal relations in perception, whatever psychological theory calls for in thought.

Classification

The relation between the term and the object to which it refers in perception maybe thought of as a one-to-one relation, but this is obviously a gross over simplification. To begin with, words do not exist as single entities but as collections of utterances and inscriptions, each one a particular use of the word on a particular occasion. A distinction has been made between the word 'type' which is embodied on each such occasion and the word 'token' which is its concrete physical embodiment as an individual sound or mark. The token is a sign in the original sense; the type belongs to language on a more abstract level. Aristotle developed a theory of universals in the things. According to this theory everything was a combination of two elements, form and matter, the matter accounting for the things being a real thing in the world, and the form accounting for its being the kind of thing it was, and thus p[laying the parts of the universal. The forms were arranged in a hierarchy of definition by genus and species, as is still done for the animal and plant worlds, everything having its place in a logical order. What science aims at is the development of concepts which will stand for any individual in a particular class, on the assumption that there is a similarity between the members of the class which entails a similarity in their behavior under similar circumstances. We may distinguish four different senses of similarity, in descending order of usefulness for purposes of classification. The first may be called genetic similarity that is between objects having similar origins; The second structural similarity, between objects having similar constituent parts, or similar relations between their parts; The third is the functional similarity, between objects having similar behavior.

Definition

The class of actual objects or events to the members of which a term applies correctly is called the denotation of that term and while the term denotes the objects in question, the objects constitute a definition of the term. On the most primitive level a term may be defined by pointing out something to which it applies, that is by showing its meaning, and this procedure is known as ostensive definition. (Ex. 'zebra' is meant animal or striped or four legged.) Terms can be defined away by means of other terms, but there will be at lease some terms left for which no such definitions are available. A list of the properties which an object must possess if it is to be included in the denotation of some term specifies the intention of the term. The more restricted the denotation, the more detailed the intention. The extension of a term is the class of all possible objects, past or future, known or unknown, which if they existed would belong to its denotation; the connotation of a term is specified by a list of the properties which the members of its denotation happen to have in common including those properties which constitutes intention. Definitions of terms by reference to other terms belonging to the same language systems are internal definitions, which go outside the language are external definitions. Where a term is defined by means of other terms the original term (the *definiendum* – that which is to b e defined) is eliminable in favour of the term or terms used to define it (the *definiens).* A

contextual definition is an explicit definition of a context or class of contexts in which the term defined occurs. The decision to call the element of atomic number 100 '*fermium'* was a stipulative definition both in the internal and external senses – internally because it enabled scientists to replace circumlocutions such as the one above (or the next element after '*einsteinium'*) by the term fermium and externally because there is an actual substance which is named fermium. In lexical definition, the definition of a term is derived from a dictionary. In a historical order of definition theories were put together rather unsystematically, depending on accidents of discovery. But in the heuristic order of definition new concepts are introduced in the most appropriate places. The introduction of a formalized language brings about the logical order of definition.

4.4 GENERALIZATIONS, HYPOTHESES, LAWS, PRINCIPLES AND THEORY

A scientist records his observation through a protocol sentence which asserts that something is in fact the case. A protocol sentence can be reached after something is in fact the case. A protocol sentence can be reached after a finite number of observations and it must be intersubjectively corroborated. An empirical generalization "All 'A's are 'B'" is arrived at after every individual observation:

This A is B
This A1 is B

.. All A's are B

One protocol sentence "A1 is not B" (contrary instance) is enough to ruin the empirical generalization. An empirical generalization might be defined as any sentence whose contradictory has the form of a protocol sentence. Sometimes sentences of the form, "If A then B" will also be protocol sentences. Sentences about electron are given the status of 'hypothesis' since electron is not observable. Hypothesis always contain theoretical terms, since any universal sentence containing only observation terms would necessarily have a protocol type sentence for its contradictory. Not all sentences containing theoretical terms or propositions about theoretical constructs, are hypothesis – only those from which empirical generalizations follow. The truth or falsity of a sentence does not affect its logical classification, and tests of truth or falsity on empirical grounds don't belong to logic. A hypothesis may become a generalization through the refinement of techniques of observation. Generalizations emerge naturally after a number of particular observations, while hypothesis have to be invented. Anybody can make the jump from 'many' to all but it takes a genius to jump, ass J.J. Thomson did from the discharge of electricity in gases to the electron. Every sentence of science falls into one or another of these categories; protocol sentences, empirical generalizations or hypothesis.

Laws, Principles and Theory

A true empirical generalization, either affirmative (All A's are B) or conditional (If A, then B) is called a law, which is accepted as true. The logical status of the scientific law depends on its being a generalization and nothing else, but its historical status depends on what scientists of the period believe and this reflects

what we mean by scientific law. There are no immutable laws of nature as only 'accepted generalization' is defined as a law. The distinction between hypothesis and empirical generalizations suggests a distinction between two different kinds of scientific law, one corresponding to empirical generalizations which are accepted as true and the other to hypothesis which are accepted as true. The law of conservation of energy is a hypothesis accepted as true since energy is not observed, but rather the penetration of bullets is observed. Principles are hypothesis accepted as suitable starting points for theoretical work. All generalizations accepted as true have the status of laws, and all hypotheses accepted as true have the status of principles.

A theory is set of universal propositions asserted by means of a corresponding set of universal sentences. These sets are isomorphic with one another. A theory is constantly changing; new laws are discovered, old ones discarded or forgotten. Scientific theory, finally constitutes a particular outlook on the world. The term comes from the Greek '*theorein'* – to look at; Scientific theory means knowledgeable out look. There are other outlooks of the world also apart from the scientific outlook of the world.

The Structure of Theory

Protocol sentences, empirical generalizations and hypothesis have empirical content. But a scientific theory has a logical structure which can be abstracted from all empirical content and studied in isolation. A theory is a structure of sentences without any accompanying scheme of constructs. The structure of the theory deals with the systematic internal organizations of theory. In the analysis of the structure of theory we have to abandon empirical truth and introduce a new kind of truth called logical truth. Formal logic is one which is concerned more with the relations of sentences rather than the content and meaning of sentences. A set of sentences in which the truth of the last (the conclusion) follows from the truth of the others (the premises) is called an argument and every inference may be expressed in an argument. Deductive logic serves for propositions and hence is often called 'propositional logic'; it is also called sentential logic. Sentential logic does not look as the internal structure of sentences but their external relations. Predicate logic deals with the internal structure of sentences. Set theory which is a recent development is due to Boole who contributed to the logic of classes. Sentential logic and predicate logic are both very ancient disciplines. The first was developed without using symbols by Aristotle and the second by Stoics. The present formulation the both the logic are due to Frege, Russell and Whitehead. In a formalized language system a calculus means a tool of calculation. The sentences from which calculation begins are called axioms. Any sentence arrived at according to the rules, starting from the axioms, is called a theorem, and the series of sentences starting with axioms and ending with the theorem, which exhibits the steps in the process is called a proof of the theorem. Pure logic is not interested in the empirical content and therefore it is an uninterrupted calculus. The concern with content provides the calculus with an interpretation by following the rules of correspondence. A rule of correspondence is as kind of definition. It establishes a relationship between the language we use to talk about the world and the language we use to exhibit purely logical truths. Sometimes the same calculus may have more than one interpretation. The calculus of which the kinetic theory of gases is an interpretation (based on the domain of gas molecules) is the same as that of which the theory of

elastic collisions in Newtonian mechanics is an interpretation (based on the domain of homogeneous spherical objects whose masses and elastic module are such as to allow them to undergo collision without permanent deformation and without fracture); it is only that the two calculi have the same form, but they are the same calculus. Therefore it is possible to have the same model for two different calculi. In the structure of a theory, measurement is used as a tool to explain the empirical phenomena. Measurement is a mathematical formalism in which what is qualitatively observed is given in quantities. In measurement a set of numbers operationally generated means nothing unless it is taken as indicating a relationship between aspects of the world, which in their theoretical setting are concepts. A measurement does not establish as connection between theory and the world; it establishes as connection between two theories, as connection between the numbers and what they stand for.

Validation of Theory

In Scientific theory the scheme of constructs is the customary interpretation of the logical calculus. The calculus has been developed to a point, where given suitable techniques of measurement, all the resources of mathematics may in principle be brought to bear on the solution of scientific problems. The truth of the calculus depends deductively on its axioms and is asserted only hypothetically. In the validation of theory we inquire how such a hypothetical system can be grounded in observation in such a way as to render it reliable as an instrument of explanation and prediction. There are three indispensable qualifications which any sentence in the theory ought to possess. The sentences should be: (a) formally correct (b) relevant; and (c) reliable. Both discovery and structure of theory discuss at length the formal correctness and relevance of the sentences to scientific theory. The meaningfulness of a sentence lies in its verifiability. But the criterion of verifiability prevents universal statements from having any meaning, since all that can be confronted in experience is particular. Therefore the criterion was modified in the direction of confirmation rather than of verification. The introduction of conformability raised the question as to how much evidence was required in order to say that a sentence was actually confirmed, and this led to the notion of degrees of confirmation. This development gave rise to an important new branch of inductive logic. The logical problem of induction is inferring a universal statement from a number of particular instantiations of it. But the inductive arguments may be strong or weak, depending on the probability of their conclusion. A successful scientific theory is one which is practically useful for the society. The method of arriving at truth in science has the following pattern: hypothesis, deduction and test. The scientific method has the following stages before arriving scientific laws: observation, analysis of empirical data, hypothesis and laws. Scientific method as a methodological inquiry aims at the reliability of explanations. It is also leading to intellectual exercise tying down of abstract logical systems to empirical contents. In this sense it is relevant to the validation of theory.

4.5 SCIENTIFIC EXPLANATION

There are events taking place around us. These events evoke curiosity in us and therefore naturally we ask, “why at all the events are taking place the way we observe them?’ The common man can explain the events from his own perspective. But the scientific explanations are different from the explanations

of the common–sense. Scientific explanations not only explain the present occurrence of events but also predict the future occurrence of events. Some philosophers of science find asymmetry between explanation and prediction. But there are some who oppose such asymmetry between explanation and prediction. Those who hold the symmetry thesis believe that scientific explanations not only explains the present occurrence of events but also control the future events. Explanation of events and description of events are not the same. Those who describe the occurrence of events merely describe the state of affairs and do not go beyond it. Empirical phenomena which are explained can be classified as (a) physical (b) Biological and (c) Social. The methodology adopted to explain the physical phenomena is not the same as the methodologies to be followed to explain Biological and Social phenomena. The explanations offered by the scientists will also be questioned by the emergent evolutionists like Lloyd Morgorn. According to the emergent theory the constituents of objects will lead to the 'emergence' of 'novelties' and hence the explanation is inadequate. The explanation must incorporate the novel qualities of the objects for better understanding of the events around us. In scientific explanation the case to be explained is called *Explanandum* and the premises or the statements such as Laws from which Explanation is deduced is called *Explanan.* There is a logical relation between *Explanan* and *Explanandum.* The explanation of individual events is different from the explanation of Scientific Laws. Inductive and deductive are the two patterns of Explanations. Inductive pattern is invariably connected to the probabilistic kind of explanation. There are many kinds of deductive pattern of explanation.

There are four kinds of Explanations; (1) Deductive (2) Probablistic (3) Teleological and (4) Genetic.

Deductive Explanation

In the deductive kind of explanation the *explanan* is a universal law from which Explanation is deduced for an *Explanandum.* Ex. Why the addition of the odd numbers always ends up with a square?

1,3,5,7,9,11……

$1 = 1^2$

$1= 3 = 2^2$, $1+ 3+5 = 3^2$, $1+ 3+ 5+7 = 4^2$ etc….

Here the *explanandum* is explained from an *explanan* which is a universal law of mathematics.

Ex. Why there is moisture on the outer surface of a glass tumbler whenever we pour ice water? Here the *Explanan* in the premise is a law in physics (law of thermodynamics). When we pour ice water into a glass tumbler the atmospheric water vapour comes into contact with the cooler part of the tumbler. The water vapour transforms into droplets of water and hence there is a moisture on the outer surface of the tumbler.

Ex. Why the percentage of Catholics committing suicide was more than the protestants during the last quarter of 19^{th} Century in England? Here the *Explanandum* to be explained is related to historical fact. Therefore the *Explanan* is a historical evidence from which explanation is deduced. In the deductive pattern of *explornation* the relation between *explanan* and *explanandum* is logical. Therefore this kind of explanation fulfills the rules of deductive logic.

Probabilistic Explanation

In the case of deductive explanation, the explanation is deduced from the *explanan* which is an invariably established law of science. The empirical validity of the premise is not verified. The validity of the *explanan* is taken for granted. Only the *explanandum* has the observational element. But in the probabilistic explanation there is a 'jump' from some cases to all cases, i.e., from 'particular' to 'universal.' Inductive generalization is interpreted as probabilistic explanation. When there is a jump from some to all or from particular to universal there is only 'inference' and not 'certainty.' Ex. When we observe clouds causing rain in the 'present,' we 'predict' that there will be rain preceded by clouds. But sometimes there may be clouds not followed by rain. In this circumstance we have to admit that there is no necessary relation between clouds and rain. So also if a physician prescribes a 'drug' for the present aliment we cannot say 'certainly' that in future also the same drug will cure similar ailment. The drug may 'probably' cure similar ailments in future. The 'causal' relation we observe between two sets of circumstances in the present may or may not be true in future. Under these circumstances we can not claim that there is certainly for the future occurrence of events. Hempel's covering-law-model of explanation tries to establish a kind of logical necessity between 'explanation' and 'prediction.' But probabilistic explanation does not support any kind of necessary relation between explanation and prediction. The future occurrence of an event is only probably true. Some of our observations of clouds followed by rain in the present will hold good for the future only probably.

Teleological Explanation

Empirical statements which are 'purposive,' are called teleological statements 'why do we have lungs?" The answer should give the purpose of the lungs in our body – the inhalation of air so that Oxygen can be utilized in blood circulation. Similarly all parts of our body have specific functions t perform. The teleological or functional aspect is relevant not only to the parts of our body but also to several natural or artificial objects around us. These objects have got specific functions to perform. In certain cases the purpose will be achieved in future. The growth of paddy crops will lead to the yield of the grains of paddy. Therefore the 'biological development' of paddy crop is in the process of achieving a purpose. However we cannot say that any biological process will lead to only one purpose. Same biological function may lead to achieving several purposes. A particular biological structure has the function for a particular purpose. However the same purpose can be achieved through different structures. For example for the movement from one place to other different living creatures have different structures. Man, cow, bird, snake and fish have different structures for achieving the purpose of 'movement.' There is no '*termini'* for the biological functions. In other words what is '*terminus'* for a particular biological function is the 'beginning' for several other biological functions. For example the 'corn seeds,' which is the terminus for a particular function, may lead to several other biological developments. The corn seed eaten by birds and goats may lead to different kinds of purposes. In the case of physical and chemical phenomena purpose is invented by human beings. Most of the cosmic and astronomical phenomena are 'accidental' in nature. Man carves out a 'purpose' in a 'purposeless' natural phenomenon.

Genetic Explanation

Some of the questions can be answered only if we have the facts relating to the 'history' of a phenomenon. For example, "why is there Indo-Pakistan conflict which resulted in three wars between the two countries?" The answer can be given by tracing the history of India, partition of the country on the basis of religion, the earlier invasions of India by the Arabs etc. In other words explanation of this kind is based on the analysis of the genesis of the problem. Any phenomenon whether it is physical, biological or social has its own evolutionary history. Unless we have the facts of the past of a process the explanation will not be adequate. The present circumstances or factors which may be seemingly the cause of a particular phenomenon may not be sufficient in offering in adequate explanation. Therefore Genetic explanation plays a important role in the explanation of social phenomenon in particular.

Explanation of Biological Phenomena

Explanation of physical phenomena and the methodology adopted to do so is not sufficient to the explanations of biological phenomena. Mechanistic interpretations of biological phenomena hold well when 'biological processes' are understood in terms of 'physical' and 'chemical' concepts. In other words 'reductionism' is followed in understanding biological processes. But reduction of biological process into physical and chemical process will lead to an explanation which is inadequate since biological phenomena are 'organismic' in nature. The whole is more than the sum of the parts in organismic biology. The lower order of a biological system 'conditions' the higher order functioning. Each system such as 'digestion,' 'blood circulation' and 'brain' are too complex in nature. Each complex system is facilitated by the lower order functions. Each complex function has purpose. All the individual systems perfectly coordinate in such away that the human beings or any other biological organisms exhibit 'holistic' activities. Mechanical explanations however are not contradictory in the explanations of biological phenomena. Mechanical explanations are complemented by teleological explanations in the complete understanding of the biological phenomena.

4.6 METHODOLOGICAL PROBLEMS IN SOCIAL SCIENCE

Physical and chemical events can be explained by following universal laws which are nomothetic in nature. Historical phenomena which are individualistic and unique can not be explained on the basis of the laws governed by nomothetic sciences. Social sciences are 'ideographic' in nature and therefore the methodology adopted to explain such phenomena is different. Some of the methodological problems that arise when we explain social phenomena are: (a) controlled inquiry, (2) subjective nature of social subject matter, (3) knowledge of social phenomena as a social variable, (4) value oriented bias in social inquiry and (5) cultural relativity and social laws. Controlled inquiry: unlike in physics and chemistry wherein we can create experimental conditions at our will to conduct study, it is not possible to create experimental conditions in the study of societies which consist of the groups of human individuals. They are all free thinking individuals having 'conscious' goals of their own. Moreover historical phenomena are 'unrepeatable' whereas physical or chemical events can be repeated in the

laboratories. Therefore 'controlled inquiry' is not practical. However there are surveys conducted in societies by using some variables to find out some facts.

Subjective Nature of Social Subject Matter

The observation of social phenomena and the observation of physical or chemical phenomena are not the same. Human beings have got subjective attitude which may not be revealed in their overt behavior. J.B. Watson's behaviorism points out that man has got no 'inner' or 'subject' side for his behavior other than his overt behavior. But a man can 'pretend' outwardly that he is a happy individual while inwardly he is sorrowful. In this context a social scientist will not succeed in collecting complete data to draw conclusions.

Knowledge of Social Phenomena as a Social Variable

If the individuals come to know before hand that they are subject to questioning by social scientists for a specific inquiry they may sometimes feed the scientists with false data thereby distorting the outcome of such inquiry.

Value-oriented Bias in Social Inquiry

Social scientists are biased when reporting an event. It is not possible to get unbiased information about social phenomena. In fact in the very selection of phenomena for study the individuals are not free from value-orientation. To frame universal laws on the basis of such biased inquiry is meaningless.

Cultural Relativity and Social Laws

Physical and chemical laws are universal in nature; but it is very difficult to arrive at universal social laws because of cultural variations in the society. Each social, religious and political group has its own laws. There are no uniform civil or moral laws universally applicable for all the societies. Therefore explanations of social phenomena by following universal laws are not possible.

Requirements for Scientific Explanation

There are logical and epistemic requirements for scientific explanation. The logical requirements consist in having premises (*explanans*) which are 'more general' than the *explanandum.* The premises must contain at least one universal law. The epistemic requirements consist in the premises to be true; the premises must be 'known to be true.' Both logical and epistemic requirements are necessary in scientific explanations.

4.7 LET US SUM UP

We have seen many crucial issues of the philosophy of science in this unit.

4.8 KEY WORDS

Teleological Explanation : Empirical statements which are 'purposive,' are called teleological statements.

4.9 FURTHER READINGS AND REFERENCES

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Student Satisfaction Survey

Student Satisfaction Survey of IGNOU Students

Enrollment No.	
Mobile No.	
Name	
Programme of Study	
Year of Enrolment	
Age Group	☐ Below 30 ☐ 31-40 ☐ 41-50 ☐ 51 and above
Gender	☐ Male ☐ Female
Regional Centre	
States	
Study Center Code	

Please indicate how much you are satisfied or dissatisfied with the following statements

Sl. No.	Questions	Very Satisfied	Satisfied	Average	Dissati-sfied	Very Dissati-sfied
1.	Concepts are clearly explained in the printed learning material	☐	☐	☐	☐	☐
2.	The learning materials were received in time	☐	☐	☐	☐	☐
3.	Supplementary study materials (like video/audio) available	☐	☐	☐	☐	☐
4.	Academic counselors explain the concepts clearly	☐	☐	☐	☐	☐
5.	The counseling sessions were interactive	☐	☐	☐	☐	☐
6.	Changes in the counseling schedule were communicated to you on time	☐	☐	☐	☐	☐
7.	Examination procedures were clearly given to you	☐	☐	☐	☐	☐
8.	Personnel in the study centers are helpful	☐	☐	☐	☐	☐
9.	Academic counseling sessions are well organized	☐	☐	☐	☐	☐
10.	Studying the programme/course provide the knowledge of the subject	☐	☐	☐	☐	☐
11.	Assignments are returned in time	☐	☐	☐	☐	☐
12.	Feedbacks on the assignments helped in clarifying the concepts	☐	☐	☐	☐	☐
13.	Project proposals are clearly marked and discussed	☐	☐	☐	☐	☐
14.	Results and grade card of the examination were provided on time	☐	☐	☐	☐	☐
15.	Overall, I am satisfied with the programme	☐	☐	☐	☐	☐
16.	Guidance from the programme coordinator and teachers from the school	☐	☐	☐	☐	☐

After filling this questionnaires send it to:
Programme Coordinator, 115, G Block, IGNOU, Maidan Garhi, New Delhi-110068