

**TEACHING
OF
GEOGRAPHY**

COMPUTER ASSISTED SELF LEARNING PACKAGE

(SUMMARIZED VERSION IN THE FORM OF E-TUTORIAL)

FOR BED STUDENTS

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Unit—I: Nature and Scope of Social Sciences

Social Studies and Social Sciences

(1) Social studies represent child's point of view while social sciences are written from the adult point of view. The detailed and difficult subject matter of social sciences written from the adult point of view is not intelligible to the students. Therefore functional, easy and integrated subject matter is to be presented to them according to the level of school.

(2) Social sciences are taught and studied giving more prominence to theoretical point view while social studies emphasizes practical aspect which may help in inculcating basic values among the students.

(3) Social sciences are taught at the Senior Secondary, College and University level. They discuss the human nature, activities and institutions minutely. Social studies, on the other hand, is a subject whose subject matter is social environment.

(4) The subject matter of social sciences is determined on the basis of research, experimentation and modern techniques of evaluation which can be understood only by adults and are beyond the comprehension of young children.

(5) Social sciences present comprehensive systematic and logical treatment of the subject matter. They are written from the scholarly point of view.

Relationship of History with Geography

History and geography are most intimately related; in fact, they are twins, one stresses time and the other space. History studies people of different times and geography deals with the people of different places. Historical facts can serve as a good basis for arousing interest for geographical studies: geography offers explanation for historical actions of mankind. The geographical phenomena have a profound influence 'on the course of history'; historical studies devoid of geographical background would be inaccurate and unscientific. World is a stage on which man plays his part, geography studies the world and history, the action of man on the world stage. It is obvious that both are allied subjects. No history of a people or a country could be complete without some reference to space nor can a geographical account be intelligible without reference to development in time. It is for this reason that it is said history without geography and geography without history are unthinkable. Since the close of the 11th century, such a mutual and intimate relationship between these two vital subjects of human knowledge has come to be emphasized as an important part of the school curriculum.

It is obvious that history cannot be intelligently studied without a constant reference to the geographical surroundings which have affects on different nations. Both history and geography have common claim on the equipment and aids of teaching, i.e., maps, pictures and atlases are useful in the teaching of the two subjects in equal measures. It is necessary that both are taught in relation to each other.

Relationship of Geography with Economics

These two subjects are very intimately related. They are so intimately related that there is a branch of Geography which is known as Economic Geography. Agriculture, industry and economic activities are subordinate to geographical factors. Wherever we find the location of coal iron ore, it is possible to establish industries. Economics, which is called the science of wealth, cannot make proper progress

without the knowledge of geographical factors. It is the geographical factors that govern the wealth of a particular person or a country. Various agricultural and economic products are the result of geographical factors. In fact, geography provides a background to the Economics.

In Economic Geography we have the description of various principles on the basis of which it is possible to study the economic aspect of the geographical factors. While discussing certain departments of Geography, we have also to take into consideration various factors of Geography. For example, when we discuss about the production, we cannot discuss it without taking into consideration the geographical factors. In fact, these two subjects are inter-dependent.

Relationship of Geography with Political Science (Civics)

Political Science is the subject that studies the administration of a particular unit and certain allied problems. Sometimes political administration differs from land to land. This difference is on account of geographical conditions. In Switzerland even today direct democracy is practiced. It has been possible only on account of geographical factors. Traditions, political principles and certain other things are also guided by geographical factors.

Today world citizenship and world government have become the ideals of Political Science and Practical Politics. Geography can play a vital role in this direction. Geography also aims at establishing world citizenship. It does so by explaining the common geographical features of different countries.

The difference in the political set-up of different countries is also explainable through geographical factors. If Soviet Union of Russia and United States of America are great contenders of each other today, it is so, to a very great extent, on account of their geographical factors. In South-East Asia, we have an area which is rich in petroleum and other mineral products. Petroleum in mineral products are essentials of political progress. Great world powers are anxious to establish their supremacy over this part only on account of their anxiety to have control over rich petroleum fields.

Sometimes it is possible to solve various political problems with the help of the knowledge of geographical factors. Once we know about the geographical background of a particular political problem, it shall not be very difficult for us to solve it. All these factors very clearly indicate that there is close relationship between Geography and Political Science.

Structure and Scope of Geography

The subject matter of geography is 'man and his environment' or 'lands and people'. The first person who started the fashion of describing the lands and people was a Greek scholar Hecatus. He travelled the then known world, which was confined to the area around the Mediterranean Sea. He described the lands and people of the areas travelled in his book "lies, peridos" which stand for lands and people. Thus Hecatus is known as the father of geography.

The different scholars defined geography in their own way. Thus the subject comprises of a maze of definitions.

- (1) Geography is the study or science of places (Vidal-de-la-Blache).
- (2) Geography is the science of distribution (Marthe).
- (3) Geography is the study of areal differentiation of the earth's surface (Alfred Hettner).

Structure of Geography

The subject matter of Geography is man and his natural environment. On the basis of subject matter, Geography has two main branches:

1. Physical Geography.
2. Human Geography.

1. Physical Geography: Physical Geography is that branch of geography which deals with the study of natural environment. Natural environment consists of five elements land, water, air, plants and animals. The sub fields of physical geography are:

(a) Geomorphology: Geomorphology is the study of land-forms and drainage.

(b) Climatology: Climatology is the branch of physical geography which deals with the study of weather and climate.

(c) Biogeography: Biogeography is a branch of physical geography which deals with the study of distribution of animals and plants on the surface of the earth.

(d) Soil Geography (Pedatology): it deals with study of development, characteristics and distribution of soils.

(e) Hydrology: it is the branch of physical geography which deals with the study of occurrence, properties and distribution of surface and ground water.

2. Human Geography: Human geography is a branch of geography which deals with the study of man and his activities on the surface of the earth in relation to environment. Man does three types of activities on the surface of the earth.

Firstly, man lives on the surface of the earth

Secondly, man makes a living and

Thirdly, man makes design for living.

On the basis of the subject matter human geography is divisible into three branches:

(a) Social Geography: It is a branch of human geography. It deals with the study of special arrangement of social phenomena in relation to total environment.

(b) Economic geography: It is a branch of human geography which deals with the study of special variation of economic activities on the surface of the earth. It also studies the variation between economic activities of the people and the relation between them and the natural environment.

(c) Cultural geography: It deals with the study of distribution of cultural groups and the interaction between them and their environment. The sub-fields of cultural geography include, Languages, Religion, Tools and skills and Social organizations.

Scope of Geography

In the words of F.Kingdom ward, "The scope of geography is as wide as earth. It overlaps the boundaries of many subjects such as geology, botany, physics, economics, sociology, anthropology, mathematics, and environmental sciences etc; all of which are important branches of knowledge in their own right. It is a

subject which establishes a link between natural and social sciences. Geography is an integrated discipline.”

Geography has assumed very wide dimensions. It draws materials from almost all natural and social sciences. An attempt is made to find cause and effect relationship between various geographical factors. Geography is a subject which studies the process of adjustment as well as various activities which is not influenced by geographical factors.

Geography begins on the earth's surface and extends into the earth and higher above in the atmosphere. It deals with the constant development of human activities and the constant change in the physical factors. It studies various physical features and whether phenomena because these exercise a great influence on the life of man- his health, occupation, food, clothing and social customs and beliefs. It studies the interdependence of man and men and nation. Geographical knowledge develops patriotism and international understanding. It teaches us that world is a global village.

It is geography alone that studies the areal character of the earth. These areas are distinct and different from one another. Geography is interested in the distinctive character of these areas. He wants to know the form, the content and the function of these areas and their relationship with one another.

Geography makes a sizeable contribution to the field of social and economic planning. Geographers have attended to such problems as coastal erosion, flood control, water supply and land classification.

Geography consists of large number of sub-fields and fields of specialization like geomorphology, climatology, soil-geography, hydrology, biogeography, economic geography, cultural geography, social geography etc. All these facts indicate that geography is full of scope and importance.

Geography as a basic discipline

Geography as a basic discipline has had a very chequered cause of development. It passed through different phases of rise and fall and at every new stage the concept of geography under went a change. The evolution of geographical thought and concept took place during the age of discoveries and explorations. The ancient Egyptians, Babylonians, Phoenicians, Greeks and Romans made valuable contribution to the geographical concepts during the 16th, 17th and 18th centuries. More and more geographical concepts developed as geography gradually emerged from a descriptive approach to the classical times to analytical approach of the present times. The geographical discipline is currently over flowing with a number of concepts and there are branches of geography. Recent years have witnessed the greatest innovations in the various fields of geography due to its new concepts and techniques and rediscovering phenomena from a scientific and new approach. Geography is usually divided into physical geography, dealing with the distribution and activities of people on earth.

The most widely recognized concept of scientific geography treats the world as essentially an abode of man and solving national and international problems. The perspective of the present day geography is as wide as the earth, as large as the life itself. In a broad way, we can conveniently say that the subject-matter of geography is the earth, not only the rock or the water that encircles it, or the universe or the man that inhabits it, or the atmosphere that surrounds it, but it studies one and all. It is because all these have a direct bearing on one or the other and have a particular meaning to man and, therefore, a need was felt to develop the concept of 'applied geography'.

Importance of Geography in our day to day life

Geography is the study of man and his environment. It tries to understand action of man and his environment. Its utility and usefulness is being realized in every walk of life. Geography establishes a link between natural sciences and social sciences. Both scientists and humanists seek to include something of geography within their respective studies. Geography is science and an art. It tries to train and develop good citizens. The importance of geography can be studied under the following heads:

(1) Knowledge of Environment: In these days life is very complex. It is highly desirable that one should be acquainted with the knowledge of environment with in which one happens to live. One gets the knowledge of his environment through the study of natural and social science. But these subjects only deal with a particular aspect or feature of environment. But geography presents an integrate picture of natural and social phenomena. It deals with the study of interaction between man and his environment.

(2) Knowledge of Why and How: Until very recently the study of geography implied a catalogue of names and a student of geography felt quite satisfied if he could commit to memory such facts as names of continents, countries and their capitals, oceans, bays, rivers, mountains, etc. the students seldom attempted to understand why and how of these all these facts and factors that go to influence life of man on this planet. Today geography is a dynamic science. It tries to find out cause and effect relationship. It deals with the natural and social aspects of the earth in order to acquire the knowledge of the surroundings within which man lives.

(3) Creating Understanding: Geography is the study of areal differentiation of the earth's surface. No two areas on the surface of the earth are alike. the people who are settled in different areas speak different languages practice different religion, wear different dresses, live in different house types, eat different foods belong to different races , have different statures, facial form, hair form and color. All these differences are because of different environmental conditions. Geography teaches man that although we are not identical but we are equal. It develops broadmindedness, tolerance, sympathy, cooperation, unity, we feeling and other social qualities. It makes students better and responsible citizens of the country and the world.

(4) Satisfies Natural Curiosity: Everybody in this world has a natural curiosity to know about the different countries and their inhabitants. Geography is the study of land people. The knowledge of geography helps us in satisfying this curiosity without visiting them.

(5) Understanding Problems: The knowledge of Geography can be made to provide basis for understanding of many social, economic and political problems. The knowledge of geography helps a student in developing proper social outlook. It develops social qualities like broadmindedness, sympathy tolerance, selflessness, fellow feelings, cooperation; unity. It helps a man to become useful member of world society.

Role of teaching of geography in international understanding

The term "International understanding" implies the presence of good will and spirit of co-operation among men and nations of the world. For peace, progress, and prosperity world requires unity, solidarity, true brotherhood, co-operation, co-existence, tolerance, we feeling and friendship among the nations of the world.

Geography studies lands and people. It is a synthetic science. It studies natural environment which is the subject matter of natural understanding. On the other hand, it deals with the study of man's activities, his society and culture, his economy and habitat, which is subject matter of social sciences. Thus geography is a link between natural and social sciences. It studies man and the natural conditions under which he lives

and earns his living. It presents a true picture of natural and manmade phenomena of the surface of the earth. It plays an essential role in promoting international understanding and surpasses other subjects in this regard. Its importance in developing international understanding can be discussed under the following heads:

(1) Knowledge of the World: Geography is a chorological science or space science. It develops in the child sense of space, just as history develops in him the sense of time. Both these qualities are necessary for the right comprehension of the world. Geography provides accurate knowledge of lands and people to the students. The knowledge gained by the students through geography helps him to understand the conditions under which the people of other lands live and work. It widens his mental horizons.

(2) Primary Needs: The natural environment offers its gifts in the form of natural resources. Man exploits these resources for his good life and living, but the rate at which these resources are utilized varies from country to country and region to region. The utilization of these resources depends upon his number, economy and stage of technological advancement. This is the common Endeavour of mankind, irrespective of the fact, whichever part he has occupied. All the people have similar basic needs (like food, clothing and shelter) and they are involved in constant struggle to find ways and means of satisfying them. Here we share the experiences with other countries of the world. The sharing of experiences takes place between advanced and the developing nations and also between developing and underdeveloped countries. Increased yield of food crops, problems involved in dry farming, oil exploration and the like are some of the many fields, where nations share their experiences.

(3) Interdependence: Relief and climatic conditions combine together to give rise to varying environments in different parts of the world. Each part specializes for the cultivation of specific crops for which it is best suited. Similarly different countries are endowed with different mineral wealth in varying proportions. A study of the geography of the world presents a true picture of a country or a region in this regard and reveals the interdependence and complementary nature of each unit. The exports and imports of a country indicate its areas of surplus and insufficient production. The disparity in the level of production and consumption is the basis of international trade. This interdependence is increasing day by day. No country of the world is self-sufficient in its requirements.

Thus the teaching of geography makes us understand that international co-operation is the secret of peace, progress and prosperity and hence international understanding is the main objective of teaching of geography.

Status of home region in the teaching process of Geography

Home area or local area constitutes that a part of the earth's surface, where the pupil lives and grows, with which he is in daily contact, where he sees the physical processes at work where he sees the people living and earning their living. Home geography is the study of local area or home area.

Home area serves as geographical laboratory. In its geographical facts, concepts, phenomena and interrelationships can be studied directly. Local geography or home geography has great significance in the teaching of general geography. Let us study it under the following heads:

(1) Training in Methodology: Every discipline has its specific methodology and students may be suitably trained in it. The main aspects of geographical methodology are: to observe, to record and to interpret. This procedure is to be put to practical use during the study of home geography. It provides pupils with ample opportunities to get training in geographical methodology.

(2) Develops Vocabulary: Every subject is characterized by its specific vocabulary, which gives it precision and definiteness. Geography is no exception to this rule. Since most of the terms of geography are concerned with natural environment, no amount of explanation, alone can make these meaningful for an average learner. They are to be seen to understand. If students are given chance to observe the various processes, facts, phenomena, and features in the local area, he will acquire a great deal of geographic vocabulary.

(3) Standard of Reference: Like other subjects, while teaching a teacher must proceed from known to unknown. In geography teaching, known area is home region. In this connection it becomes the focal point of study. In his day to day teaching a teacher has refer to some facts, and features in order to make the students understand the geographical facts and figures of far of lands. The local region becomes standard of reference for teaching and learning of geography. It makes geography teaching easy and interesting.

(4) Observe Relationship: Home geography provide a direct learning experience to the pupils. In the home region he is observing the relationship that exists between the elements of natural environment and also between the natural environment and cultural environment. By finding the relationship, he is working out the geography of the local area.

(5) Sense of Reality: If geography teaching is confined to four walls of class room, the children will get an impression that it is something, which has place only in books. Home geography or local area provides pupils with an opportunity to see the physical processes at work and to see the people working and earning their living. He comes to realize that subject matter of geography is realistic and contemporary. There are lands which really exist and people who actually live and work.

Objectives of Geography at Secondary Level

Instructional objectives of teaching geography at secondary level are summarized below:

(1) Knowledge: It is defined as the remembering of previously learned material. It represents the lowest level of learning outcomes in the cognitive domain. In geography knowledge is concerned with the remembering of geographical facts, events, terms, concepts, principles, generalizations, hypothesis, problems, methods, trends, symbols, tools, techniques, processes etc.

The student in acquisition of knowledge is expected to:

- a. Recall terms, facts, events, concepts, principles, symbols etc
- b. Recognize terms, principles, concepts, events, symbols etc
- c. Indicate information on maps, charts, diagrams, graphs etc
- d. Read information in various forms such as charts, maps, diagrams, graphs, tables etc

(2) Comprehension: Comprehension is defined as the ability to grasp the meaning of material. It represents the lowest level of understanding. For comprehension knowledge is necessary. Comprehension is one step beyond knowledge.

In comprehension the students are expected to:

- a. Translate from one form of communication to another.
- b. Distinguish and differentiate between facts and terms.

- c. Compare and contrast.
- d. Explain different terms, concepts etc.
- e. Summarize.
- f. Cite illustrations.
- g. Detect and rectify errors.
- h. Identify relationship between causes and effects.
- i. Interpret data presented in various forms.
- j. Identify underlying assumptions.

(3) Application: Application is the ability to use the learned material in new and concrete situation. Application is only possible when the student possess knowledge and comprehension. Knowledge and comprehension are the pre-requisites of application. Learning outcomes in this area require higher degree of understanding than those of comprehension.

The student in application step is expected to:

- a. Analyze the situation to identify the problem.
- b. Select relevant knowledge to explain a new situation or solve a problem.
- c. Judges adequacy, relevance, essentiality, verifiability etc of data or any other evidences.
- d. Re-organizes the material in a new situation.
- e. Establishes relationships.
- f. Formulates hypothesis.
- g. Verifies hypothesis.
- h. Draw inferences.
- i. Generalize principles, laws etc.
- j. Predict outcomes in a given situation.

(4) Skills: Skill is an instructional objective which finds its place in co native or psychomotor domain. In this domain the students are expected to:

- a. Draws maps, sketches, diagrams and geographical structure to present geographical information.
- b. Presents models, tools and apparatus etc.
- c. Handles tools and geographical apparatus.
- d. Makes observation in an accurate manner.

(5) Interest: Interests form a part of affective domain. The students of geography are said to develop interest in geography if they perform activities like:

- a. Read literature of the subject geography.
- b. Collect geographical information from various sources, i.e. books, magazines, journals and newspapers.
- c. Desire to know the lands and people of the different of the country as well as the world.
- d. Participate in geographical tours, field trips, excursions, surveys etc.
- e. Collect specimens and pictures of geographical interest.
- f. Advances relevant geographical reasons to explain various human activities and natural phenomena.
- g. Visits places of geographical interests.
- h. Pursues hobbies related to the study of geography such as model making, photography, cartography, surveying etc.

(6) Attitudes: The subject matter of geography is man and his environment. Through geography, the students are expected to develop positive attitude towards people and the environment. The students are said to have developed positive attitude when they;

- a. Recognize the contribution of various people of the world living in different parts of the world in the development of modern civilization.
- b. Recognize the significance of interaction between man and his environment.
- c. Recognize the interdependence of states, regions and countries of the world.
- d. Exhibit, sympathy and love for all the people of the world.
- e. Considers national problem in interaction context.
- f. Realizes the importance of judicious exploitation and conservation of the available natural resources.

The above mentioned adjectives make it clear, what is the purpose of teaching geography at the secondary level. The teacher of geography is expected to realize these behavioral outcomes through the teaching of geography. The instructional objectives give direction to the activities of the teacher.

Unit—II: Instructional Planning

Lecture method of teaching in Geography

Lecture method of imparting instructions is teacher dominated. Lecture is the method of communicating directly to the students where the talking by teacher is the most predominant activity.

Lecture can be talking to the students or talking with the students, when it is talking to it takes the form of one way communication in which teacher plays the active role and remains the focus of the class. When it is talking with it takes the form of two way communication. In this kind, lecture becomes a question-answer or discussion activity instead of merely giving information.

Lecture once considered the sole source of information, is now being treated as one of the different sources of information available to the learners. But lecture has edge over other sources of information. Apart from its major function of information giving, it plays certain unique roles, which cannot be performed by other unanimated sources. Firstly, the teacher may use it to motivate the students. It is through listening to lecture, that students are attracted to different areas of study, secondly, the teacher may use it to integrate various sources of information and uses it as a thread which brings the different sources of information into one garland.

Merits of Lecture Method

1. Lecture method is economic method of teaching.
2. It is very useful for teaching large classes.
3. Through Lecture method, the syllabus can be covered quickly.
4. It is very useful for motivating the students and integrating the different sources of information.
5. It saves time as well as energy of the students.

Demerits of Lecture Method

1. This method is teacher dominated method of imparting instructions to the learners
2. This method doesn't take into consideration individual differences. The teacher expects below average, average and above average students to learn at the same pace, which is not possible.
3. This method is not useful for obtaining psychomotor objectives.
4. In this method the students are passive listeners and not active participants. It is unpsychological
5. Lecture strategy spoon feeds the learners and there is no room for self-study.

Project method of teaching in Geography

John Dewey was an American Philosopher, psychologist and a practical teacher. He was pragmatist. The project method is the direct outcome of his philosophy.

Project method is a self-learning method. In this method student plays a major role. It is student dominated method.

The dictionary meaning of the word project is a scheme or a design. Several authors have defined the concept of project. But one of the most comprehensive definition was given by Good (1973). According to Good, "Project is a significant practical unit of activity having educational value and aimed at one or more definite goals of understanding, involving investigation and solution of problems and frequently the use and manipulation of physical materials, planned and carried to completion by pupils and teachers in natural, real life manner".

The project provides real life experience to the pupils. It helps them to plan, to observe and to conceptualize. It entails the involvement of the both the teachers and the students. It tends to develop self-learning habits in the learners. The learners learn to solve certain kinds of problems systematically.

Aims of Projects

The aims of projects can be broadly divided into the following categories:

(1) Knowledge: Working on a project enables a learner to develop knowledge of his topic, and various techniques used in the area of study. He knows about the methodology used in the discipline. The learner understands the difficulties in solving the problems. These problems may be related to time, material, labor, cost etc.

(2) Skills: The project develops the following skills in learners:

(a) Skill for independent work :The skill for independent work are independent thinking, working habits, initiative and resourcefulness, plan work, analyze factors in solving a problem, hunt for sources, collection of data, select relevant materials, fabricate experiments, manipulate instruments, make keen observation, analyze results, synthesize findings, generalization, present his findings and communicate them properly.

(b) Skill for group work: Very often project work is done in groups, while working in a group the people develop the ability to co-operate and manage the people. Good projects provide the opportunity to develop fellows' feelings and democratic outlook.

(c) Skill for communication: Project work develops in learners communication skills through variety of activities. It develops oral skills by argument and discussion with colleagues and supervisors.

3. Personality Attributes: Project work also inculcates various personality attributes in learners. The personality attributes include higher mental abilities like critical thinking, creative thinking, evaluating ability, analytical thinking etc. the project work thus help in cognitive development in the learners.

Merits of Project Method

(1) The students have a clear picture of the project and the aims and they continue to work accordingly.

(2) In this method, there is a good deal of activity and so the knowledge is founded on solid base.

(3) Since the students have to work in realistic circumstances, they develop an attitude of realism.

(4) In projects, the students get a pragmatic education. They learn various things with reference to their utility in life and so they acquire a pragmatic attitude towards life.

(5) Since the projects have a bearing on life, the students also develop an attitude of interest for life.

Demerits of Project Method

- 1) Project requires lot of time.
- 2) It does not provide sufficient knowledge to the students.
- 3) It is expensive method, because it requires tours, excursions, purchasing of equipments and instruments.
- 4) The project work has the tendency to upset the regular time table.
- 5) This method is not suitable for handicapped children.

Discussion method of teaching in Geography

Discussion method of instructional strategy is a co-operative method in which the teachers and the learners are active participants. It is also a democratic method because the participants are free to express their views and opinions. In the discussion there is exchange of opinions accompanied by search for factual basis. The participants are involved in competitive co-operation. It is the process of collective decision making. It aims at uniting and integrating the work of the class. Discussion encourages the students to use their experiences for further clarification and consolidation of learning materials. They are active participants in discussion. Teachers' job is to provide guidance to the students activities. A good discussion is well planned and well mannered conversation and as such participants must be courteous, clear, good natured, tolerant and sincere.

Discussion involves study and preparation, selection and organization of subject matter, exchange of ideas and learning procedures. It involves valuable training to the students in reflective thinking.

Discussion may be formal or informal. In formal discussion proper schedule is prepared and certain rules are observed. The informal discussion takes place informally, where discussion does not take place informally, where discussions does not demand any schedule or observance of rules.

Advantages

- 1) Discussion helps to improve verbal-self expression. It provides opportunity to every participant to express his views on the topic of discussion.
- 2) Discussion is a process of collective decision making.
- 3) The discussion method helps in developing higher mental abilities like critical or logical way of thinking.
- 4) Discussion discourages rote memory and cramming. It provides right approach for acquiring knowledge and information of the problem or topic.
- 5) Discussion develops right attitude, courtesy, clarity, patience, tolerance and sincerity among the participants.

Limitations

- 1) Discussion strategy is not useful for all topics, problems and units of study.
- 2) It has greater chances for deviation from the main topic. It is likely to go off the track.

- 3) In discussion there is possibility for monopolization. Only a few students dominate and monopolize the situation. A large number of participants do not participate in the discussion.
- 4) Too much of criticism may lead to unpleasant feelings. It may create emotional tension.
- 5) This method is not suitable for secondary classes but only suitable for higher classes.

Assignment method of teaching in Geography

This method is generally advocated for the teaching of Geography in higher classes. The whole syllabus is split into significant units, each unit is sub-divided into assignments. The students are usually required to prepare the assignments in writing. It is believed that written assignments help in organization of knowledge, assimilation of facts and better preparation for examination. H. R. Douglass and others are of the view, "The assignment represents one of the most important phases of teaching."

Types of Assignments

(1) Preparatory Assignments: These assignments are meant for the purpose of circulation. The pupil can be prepared for the work which is to follow on the next day. The preliminary pilot work will enable the teacher to lead the class with ease and understanding.

(2) Problem Solving Assignment: Assignments can also be given on making and handling tools-as talking reading and maintaining records. Converting recorded data into geographical tools for better and clear understanding, preparing models and charts, interpreting graphs, diagrams and cartograms.

(3) Revisional Assignments: The assignment is given for providing drill to work done by the students, for checking their retention and reproduction of facts, incidents, etc., of the topic and for checking the understanding of the topic.

(4) Remedial Assignments: These assignments are devised in the light of pupils reactions to the three types of assignments mentioned above. The purpose of these assignments is to remove weak points and clear misunderstandings.

Advantages of the Assignment Method

(1) In this method the teacher can foresee the difficulties which the students may have to face in the learning of the topic. Teacher can guide the students by intelligently putting thought provoking questions in his assignments.

(2) This method enables the teacher to know the interests of his students in a particular subject area.

(3) He is also able to discover the specific abilities of the individual pupil which may be developed and used for their own good.

(4) Assignment method is quite suitable for pupils of different ability levels-slow, average and gifted.

Problem Solving method of teaching in Geography

Whenever there is some obstruction in the learning-teaching situation, we say that there is some problem. Yoakam and Simpson define it as, 'a problem occurs in a situation in which a felt difficulty to act is realised. It is a difficulty that is clearly present and recognised by the thinker. It may be a purely mental

difficulty or it may be physical and involve the manipulation of data. The distinguishing thing about a problem, however, is that it impresses the individual who meets it as needing a solution. He recognises it as a challenge.'

Steps in Problem-Solving

1. The Formation and Appreciation of the Problem: The nature of the problem should be made very clear to the students. They must also feel the necessity of finding out a solution for the problem.

2. The Collection of Relevant Data and Information: The students should be stimulated to collect data in a systematic manner. Full co-operation of the students should be secured. They may be invited to make suggestions as to how they could collect the relevant data. The teacher may suggest many points to them he may ask them to read extra books. He may also ask them to organise a few educational trips to gather the relevant information.

3. Organization of Data: The students should be asked to sift the relevant material from the superficial one and put it in a scientific way.

4. Drawing of Conclusions: Discussions should be arranged collectively or individually with each pupil. Panton suggests that the teacher's aim 'should be to secure that, as far as possible, the essential thinking is done by the pupils themselves, and that their educative process produces the particular solution, formulation of generalisations at stake.' Care should be taken that judgment is made only when sufficient data is collected.

5. Testing Conclusions: No conclusion should be accepted without being properly verified. The correctness of the conclusion must be proved. The students must be taught to be critical, to examine the 'truths' which they, 'discover' to see 'whether they fit all the known data.' We should have our minds free from every bias in the process of problem-solving.

Merits of Problem-Solving

1. It helps in stimulating thinking.
2. It develops reasoning power.
3. It helps to improve knowledge.
4. It helps in developing good study habits.
5. It affords opportunities for participation in social activities.

Demerits of Problem-Solving

1. Generally speaking problem-solving involves mental activity only. There is less of bodily activity.
2. Small children do not possess sufficient background information and therefore they fail to participate in discussion.
3. There is a lack of suitable reference and source books for children.
4. It involves a lot of time and the teachers find it difficult to cover the prescribed syllabus.

Inductive method of teaching in Geography

Inductive method is a method in which general rules and principles are derived at by observing and analyzing the specific facts and events. It should be remembered that teaching Maxims like from known to unknown, from particular to general and from concrete to abstract are used in this method. In other words while making use of this method the teacher presents different examples from their own experiences before the students and with the help of these examples, the students are guided to come to certain conclusions that may lead to the particular principles. By examining a number of examples the students are encouraged to arrive at generalization or establish connection between the cause and effect.

Merits of Inductive Method

- (1) Inductive method is a scientific method. it helps to develop scientific mindedness.
- (2) This method develops scientific attitude among the students.
- (3) This method is based on actual observation, thinking and experimentation.
- (4) This method develops interest among the pupils by providing them challenging situations.
- (5) It enables the students how to observe and how to come at certain conclusions.

Demerits of Inductive Method

- (1) It is time consuming and laborious method.
- (2) This method is not suitable for very small children.
- (3) Only some generalizations can be discovered through inductive method.
- (4) This method alone is incomplete.
- (5) It is not possible to apply this method in solving and understanding all the topics of geography.

Deductive method of teaching in Geography

In deductive method we proceed from general to particular. Thus deductive is the reverse of induction. In this method facts are deduced by the application of established formulae or experimentation. Here the approach is confirmatory and not explanatory. In this method we proceed from-general to particular, from abstract to concrete e.g. Hilly areas are cold, Simla is a hilly area, therefore Simla is cold.

In this method the students are told to accept a generalized truth or pre-constructed formulae or a fact as well as established truth and then asked to apply it in solving so many particular relevant problems. In other words, first the teacher presents the general principle before the students and then applies different examples to prove the fact. Many educationists call it with different names. Prof. Bounding calls it knowledge from knowledge and some call it analysis method.

Merits of Inductive Method

- (1) This method is most useful for small children.
- (2) It is applicable for all types of students.
- (3) It is applicable in all the subjects including geography.
- (4) It is more useful for practical life.

(5) This method leads to increase in efficiency and speed.

Demerits of Inductive Method

(1) This method encourages cramming.

(2) There is not much cordial relationship between the teacher and pupils.

(3) In a way this method is unscientific because the approach is merely confirmatory.

(4) This method is unpsychological because the students do not learn through their self-efforts.

(5) It does not develop self-dependence among the pupils because the teacher provides ready made material.

Regional method of teaching in Geography

It was A. J. Herbertson who gave impetus to this method by dividing the whole world into broad climatic regions. In present the natural region method has become the most common and universal method in teaching the regional Geography either of the world or individual country or continent. Herbertson based his classification on climate and vegetation. This naturally means that nearly all Geographical factors are taken into account. His classification is of great value is sub-dividing the continents and in analyzing the factors which influence human activities. Those countries which lie within these climatic divisions may further be divided into structural zones.

Merits of Regional Method

(1) It is scientific, orderly and systematic method.

(2) It provides a better understanding of geography and economics on time and energy.

(3) It prepares the child to pursue independent study of geography which is very useful in individual method of teaching.

(4) It contrasts physical, natural, social, economic and other phases of man's life.

(5) It helps the child to understand the environment.

Demerits of Regional Method

(1) The boundaries of natural regions are not very clearly defined and one region therefore merges into another.

(2) Sometimes we miss the smaller region while paying full attention to the broader regions. In this way a very vital point is neglected.

(3) It is not possible to have a final division on regional basis.

Case study method of teaching in Geography

Case study is a learning practice that shifts the emphasis from lecture-based activities towards more student-based activities. In general, teaching materials for case study can come from various sources. Teaching materials can be a short journal or news article; they can be a scenario of problem solving and decision making; they can be an open-ended question, a picture or even a diagram. The aim of case study is

to help students demonstrate the theoretical concepts in real-life issues. Students can also develop various generic skills, such as decision making and practical skills through the case study. Case study can be practiced either individually or as a group. Students are actively involved in the learning process because they are required to produce solution and arguments for their study. Case study can reinforce the traditional teaching and learning methods because it acts as a bridge between theory and practice.

Advantages of Case Study

- (i) An opportunity to apply the theoretical concepts to a real-life scenario
- (ii) Encourage active and group learning
- (iii) Develop generic skills such as decision making, problem solving and collaboration skills
- (iv) The mimic of real-life scenario may enhance students' engagement to the subject
- (v) Stimulate students to carry out independent research outside the classroom
- (vi) Practice time management because students need to discuss and decide how to best carry out the work in class

Disadvantages of Case Study

- (i) Some teachers may be reluctant to change to this new teaching modules (prefer talk and chalk approach)
- (ii) Time consuming to look for or create a case
- (iii) Students may be unfamiliar with this teaching and learning approach, teachers may need to take some time to explain the instructions
- (iv) Quieter students may find this approach challenging because they may have to work with other students

Field Trips as a technique in the teaching of Geography

This is the most useful method of teaching of Geography. It is the best way to study geographical facts as they exist. These trips serve a very useful purpose in the formulation of character of a student so that he may not be a misfit in society. A good teacher can arrange a good number of opportunities of paying visits, at least, to local places if not to distant areas. When students are taken out they may be encouraged to observe carefully the physical phenomena and the social, economic and industrial conditions. The simplest and important thing to observe is the natural objects like landscapes, land formation and different types of soils. A journey of hilly area, to a river or of the sea-side may explain terms such as erosion, deposition, shells, grade and U-shaped valleys, etc. similarly, a visit to a zoo may explain the habitation of plants and animals and the natural conditions required for them. Thus a teacher can come across varied material for the teaching of physical Geography.

Merits of Field Trips

- (1) This method provides an outlet to the surplus energy of the adolescents and satisfies their instinct of curiosity.

(2) It provides learning experiences which bring clarity, vividness and lend reality to theoretical experiences gained in the classroom.

(3) This method not only provides training in leadership for various programmes of excursion but also inculcates the spirit of cooperation among the students.

Demerits of Field Trips

(1) It is inconvenient and consumes time and money of the students. Every student cannot afford to go on excursion to learn geography.

(2) It is no doubt, useful method but it is not possible to depend upon it for teaching everything.

(3) Most of the teachers lack initiative and they do not want to organize excursions.

Observation Method as a technique in the teaching of Geography

Geography is the study of man and his environment. Its subject matter is concrete and real. It can be seen and studied anywhere and at any time if we choose it.

Geography has a peculiar methodology. This helps in carrying out the investigations efficiently. The principal aspects of geographical methods are: to observe, to record and to interpret.

The technique of obtaining geographical information by direct observation is basic to the subject. By observation a learner is brought in close contact with the geographical facts. We must bear in mind that the books written on geography are based on the direct observation of the people who have visited various countries or regions.

There are certain geographical facts, terms, concepts and processes, which needs direct observation and without which it is not possible for the learners to understand these terms, facts and processes. Direct observation aid where the teachers words fail.

Merits of Observation Method

1. Learning achieved by observation method is of higher quality.

2. By observing geographical facts children gain experience. According to Jhon Dewey, "an ounce of experience is better than ton of theory".

3. Direct observation of geographical facts breaks the dullness and drabness of the classroom. It makes the learning an enjoyable experience.

4. If geography teaching is confined to the four walls of classroom, the children get a notion that the subject matter of geography is something which finds place only in books. Direct observations of geographical facts make them feel that its subject matter is concrete and realistic.

5. Direct observation of geographical facts leaves the permanent impression on the plastic minds of children.

Demerits of Observation Method

1. If this method is conducted aimlessly and for the purpose of entertainment only, it will degenerate it aimless wondering.

2. This will upset the timetable and will affect the teaching of other subjects.
3. This method is not suitable for small children because they have not developed the power of observation.
4. It is time consuming and entails great cost, which any Indian is not in a position to afford.
5. It needs trained teachers, which our schools don't have.

Questioning Techniques in the teaching of Geography

The questioning is technique as well as method of teaching. It is given by Socrates. It serves various purposes in the teaching learning situations. Questioning is also an important teaching skill. An effective teacher employs questioning technique appropriately and also prepares good questions. In the questioning skill the teaching of social sciences including geography, the teacher asks questions from the pupils' questions are put to the students at different stages of the lesson and the pupils answer these questions. Which are supplemented and elaborated by the teacher. Questions are fundamental to the concept of learning. They arouse mental activity. A good question is a key to all educative activity. A good teacher must be a good questioner. It is the most effective instrument in the tool kit of a teacher to make the teaching learning activity meaningful and effective. Teachers must acquire mastery over the art of questioning. Questioning brings out relevant experiences already existing in the minds of pupils and help in the formation of associations between the new knowledge and the old, thus integrating the two.

For framing good questions, the teacher must have mastery over the subject matter and the power of clear and logical thinking. He must possess the skill of wording of the questions.

Characteristics of Questions

An effective teacher should be able to construct and to use good questions. Preparation of good questions requires insight, experience mental ability and awareness of teaching problems. Teaching is very social and dynamic activity. A teacher should have the full understanding of good questions. The following are the main characteristics of good questions.

1. The language of questions should be good and simple.
2. The form of the question should be straight forward. There should not be ambiguity.
3. The question should have the definite meaning.
4. The question should be in logical sequence. It should be psychologically workable.
5. The questions should be thought provoking.
6. The question should serve the purpose of teaching learning.
7. The questions should have utility from learners and content point of view.

Broad objectives of Content Analysis

The term 'Content Analysis' has been defined I.K. Davies "It is the analysis of topic or content unit to be taught into its constituents or elements and arrange them in a logical sequence". A content is broken down

into elements. Each element may be performed by using specific tactics and the specific objectives can be realized. The elements are arranged in a logical sequence so that positive transfer of learning can be facilitated. The teacher has to employ his imagination, creativity and insight in synthesizing the elements of the content.

Methods of writing objectives in behavioral terms

There are many approaches for writing behavioural objectives, but the approach of Robert Mager and Robert Miller are more prominent. Robert Mager's approach is the most popular approach. He concentrates on cognitive and affective objectives. In his approach he has given emphasis on action verbs rather than mental process. According to Mager, instructional objectives are best described in terms of terminal behaviour expected from the learners. He considers that clear objective should be formulated in the following manner:

(i) Identify the terminal behaviour by its naming.

(ii) Define the desired behaviour by describing the important conditions under which the behaviour will be expected to occur.

(iii) Specification of the criteria of acceptance performance by describing how will the learner perform to be considered acceptable.

Mager's approach has adopted Bloom's taxonomy as a starting base for formulating the objectives. He has used associated action verbs for stating the different objectives as follow -

Associated Action Verbs for the Cognitive Domain

1. Knowledge Define, list, label, name, recall, recognise, reproduce, state, select, write, underline etc.

2. Comprehension Classify, change, distinguish, explain, formulate, Identify, Illustrate, Indicate, Interpret, Justify, name, select, summarize, Translate etc.

3. Application Assess, change, choose, construct, compute, demonstrate, discover, explain, establish, find, modify, illustrate, predict, perform, solve, use, etc.

4. Analysis Analyse, associate, compare, contrast, conclude, criticise, differentiate, justify, identify etc.

5. Synthesis Argue, conclude, derive, discuss, generalize, integrate, organise, prove, relate, restate, summarize, synthesize etc.

6. Evaluation Associate, choose, compare, criticise, conclude, define, evaluate, judge, relate, support, verify etc.

Unit Plan

Though syllabus is prescribed for each class, yet the teacher is at liberty to draw up his own teaching syllabus. It is best to organize the teaching syllabus around a few broad areas of experience of students. For this purpose the syllabus is divided into a number of units. According to dictionary meaning a unit is a major sub-division of a course of study or subject field.

According to Mossison, "Unit is a comprehensive and significant aspect of environment of an organized science and art".

According to Wesley and Wronky, "The unit is an organized body of information and experience designed to effect significant outcome for the learner".

Characteristics of a Unit

- (1) A unit is a purposeful organization of a part of aspect of subject matter.
- (2) It is organized around some problem.
- (3) Its content material is according to the related subject or an aspect of it.
- (4) It does not include only bookish subject matter, but also some useful activities
- (5) All the aspects of a subject are included in it making it very comprehensive.
- (6) Its organization is logical.
- (7) It is developed according to experiences of the pupils.
- (8) It is developed with the cooperation of the pupils.
- (9) It should include those activities and content matter which are helpful in developing their creativity.

Advantages of Unit Planning

- (1) It gives training for systematic thinking and establishing relationship.
- (2) As knowledge is presented in combination, learning is facilitated. Each thing is learnt in a unit gains meaning on account of its having been studied in proper context.
- (3) Unit planning leads to proper traits and outcomes.
- (4) Learning becomes functional.
- (5) Provides group situations.
- (6) There is a scope for effective use of supplementary material.

Lesson Planning

A lesson plan is a plan of action. It includes the working philosophy of teacher, his knowledge of philosophy, his information about and understanding of his pupils, his comprehension of the objectives of education, his knowledge about the materials to be taught and his ability to utilize the effective methods or procedures.

Lesson planning is a brief outline of the main points of the lesson to be covered by the teacher in a specified period for the realization of specified objectives. It indicates clearly what already has been done, what the pupils are to do, how the pupils are to be engaged in various activities and what activities are to be pursued. It is a clear and precise statement of aims and purposes of the lesson and the various techniques and devices used by the teacher.

Importance of Lesson Planning

1. Lesson planning helps a teacher to define his aims and objectives more clearly. The teacher thinks of ways and means with which he can realize his aims most effectively.
2. It helps a teacher in the selection and organization of subject matter, materials and activities, according to the abilities, aptitudes and development level of students.
3. Lesson plan helps a teacher in the selection of most effective teaching procedure, which will lead to the modification of pupils' attitudes, habits and information in desirable direction.
4. Lesson planning helps a teacher to evaluate the outcomes of instructions. Evaluation is very important part of teaching-learning process. Evaluation is possible if definite aims and objectives are kept in mind.
5. Lesson planning helps a teacher to be systematic and prevents wastage. It saves him from haphazard teaching. Needless repetitions are avoided.
6. Lesson planning establishes proper connection between the different lesson or the units of study. Thus it encourages continuity in the teaching process.

CLASS – VI LESSON PLAN
CHAPTER-2: GLOBE: LATITUDES AND LONGITUDES

Unit	Globe: Latitudes and Longitudes
Class Transaction	Total: 5 periods (approx. 40 min each)
Pre-requisite for the course	This lesson requires 1. Basic knowledge of planets and solar system 2. Knowledge of earth, moon, sun etc.
Assessment of qualifying knowledge	1. Written test 2. Group Discussion 3. HW notebook 4. UT Plans/ Activities
Objective	Students would be able to understand Latitudes and Longitudes, Heat Zones of the earth and the relationship between time and longitude

<p>Learning Outcomes</p>	<p>KNOWLEDGE- <i>Students will know and understand</i></p> <ol style="list-style-type: none"> 1. globe as the three-dimensional model of the Earth. 2. the advantages and disadvantages of globe. 3. the concept of latitudes and longitudes. <p>SKILLS AND COMPETENCIES- <i>Students would be able</i></p> <ol style="list-style-type: none"> 1. To Critically analyses heat zones on the basis of Latitude. 2. Collaboratively locate places on globe with the help of latitudes and longitudes. 3. To clarify difference between the standard time and local time. 4. To identify relationship between longitude and time. 5. Answer knowledge and understanding questions based on the topic. <p>Differentiation- Difference between Latitude and Longitude.</p> <p>(Competencies: Critical thinking, COLLABORATION and COMMUNICATION)</p>
<p>Transaction Methodology (The teacher can use the mentioned techniques, wherever</p>	<p>Transaction would proceed in the following manner-</p> <p>Questioning- <i>Multiple level question-</i> Teacher will prepare a list of question related to the topic (Critical thinking, Communication)</p> <p><i>Brain Storming-</i>The class would start with a discussion on what the students have already learnt in the previous classes and hence what is it that they would learn now. They would also be told the significance of the topic that they would be studying.</p>

<p>applicable, and can use any other too.)</p>	<p><i>Introduction of the topic-</i> PPT and Digital Content would be shared</p> <p><i>Guided practice followed by Independent Practice-</i> Spiral questions to be discussed in the classroom.</p> <p>Techniques to be used: Quiz Daily Practice Problem MCQ Peer Assessment Student -teacher interaction, Wipro- G.O.s(web chart, flow chart and differentiation table, compare- contrast matrix), silent reading, collaborative learning, Research work/surveys</p>
<p>Resources</p>	<p>Text Book: NCERT text book –The Earth Our Habitat</p>
<p>Self-Study, Home Work, Assignments</p>	<p>Independent Practice: Students would do the questions in their H.W notebooks as mentioned in the monthly planner.</p> <p>HW notebooks to be marked as per the given plan: <i>Assessment Parameters:</i> The total marks for the activity is 5 marks On time submission..... 1 mark Presentation/ Neatness..... 1 mark Content.....3 marks</p> <p>It is also advised that the students come to the class with proper background knowledge of the topic under discussion. They can refer to the resources stated above.</p>
<p>Assessments</p>	<p>Oral Test (5 minutes)</p>
<p>Addressing Classroom Diversity</p>	<p>It's a different classroom today: As the kids are from different socio-economic background, so are their needs, demands and aspirations. Today all kinds of students including the gifted, the average and the differently able are mainstreamed into one class. So, the teaching learning process must be devised in such that can cater to the needs and aspirations of students of abilities</p> <p>. The following techniques can be used for different groups:</p> <p><i>For gifted students:</i></p> <ul style="list-style-type: none"> • Higher order questions to be done • Preparing a debate

	<ul style="list-style-type: none"> • Making PPT • Designing an exhibit • Writing a report • Preparing a talk • Encouragement for referring other resources <p><i>For weak students:</i></p> <ul style="list-style-type: none"> • Basic understanding questions to be completed • Buddy help to be provided • Provide grade-up classes • Making a Chart/diagram/poster/ flashcards <p><i>For differently abled students:</i></p> <ul style="list-style-type: none"> • Ignore spelling mistakes and formulae, if not written • Call parents at regular intervals • Provide grade-up classes
Assessment Questions	<ol style="list-style-type: none"> 1. Describe the importance of Equator in three points. 2. Describe the shape of the earth. 3. Distinguish between latitudes and Longitudes. 4. Compare the three heat zones on the basis of Location and Temperature of the Earth. 5. What is the difference between Standard Time and Local time?
Marks	The weightage would be given by CBSE.

CLASS – VI
DAY WISE CONSOLIDATED LESSON PLAN

SUBJECT: GEOGRAPHY SESSION: 2019-20

Topic	DAY 1- What is a Globe?
Class Transaction	40 min each
Pre-requisite for the course	This topic requires Basic knowledge of a Globe.
Assessment of qualifying knowledge	The facilitator introduces the chapter by using a globe. It will be followed by Brain Storming-The class would start with a discussion on what the students have already learnt in the previous classes and hence what is it that they would learn now i.e. latitudes and longitudes. They would also be told the significance of the topic that they would be studying. It will

	be followed by Class discussion for 5 minutes and reading of the chapter till page no. 10 & 11 , Diagram representation of globe by the teacher where she will explain about parallels of latitudes.
Objective	Student will be able to understand more about Latitudes and Longitudes.
Learning Outcomes	<p><u>KNOWLEDGE</u>- <i>Students will know and understand more about globe. What are latitudes and longitudes.</i></p> <p><u>SKILLS AND COMPETENCIES</u>- <i>Students would be able to perform:</i></p> <p><i>Map and Globe Activity.</i></p> <p><i>Involving the Competencies –</i></p> <p><i>Creative thinking</i></p> <p><i>Collaboration</i></p> <p><i>Communication</i></p>
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	<p>Transaction would proceed in the following manner-</p> <p><i>Map and Globe Activity. (Collaboration, Communication)</i></p> <p><i>Guided practice followed by Independent Practice-</i> NCERT questions to be discussed in the classroom.</p> <p>Techniques to be used:</p> <p>Quiz</p> <p>Daily Practice Problem</p> <p>MCQ</p> <p>Peer Assessment</p> <p>Student -teacher interaction,</p> <p>Wipro- G.O.s(web chart, flow chart and differentiation table, compare- contrast matrix),</p> <p>silent reading,</p> <p>collaborative learning,</p> <p>Research work/surveys</p>
Resources	Text Book: NCERT text book for Social Science.
Self-Study, Home Work, Assignments	Independent Practice: Questions related to topic covered in the class.
Assessments	Oral Test (5 minutes)

DAY 2	Topic- Heat zones of the earth-Torrid zone
Class Transaction	40 min
Pre-requisite for the course	The facilitator will conduct One-minute quiz to recap the learning of previous day and check the understanding. She will ask the questions given below: RECAP <ul style="list-style-type: none"> • What is an axis? • What is an equator? • The total number of latitudes are_____.
Assessment of qualifying knowledge	Facilitator asks the students to write down: <ul style="list-style-type: none"> • What are parallels of latitude? • Which line divides the earth into two equal parts? • What is the degree of north and south pole?
Objective	Given the content (topic) the students will be able to learn about the heat zones of the earth-Torrid zone.
Learning Outcomes	<u>KNOWLEDGE</u> - <i>Students will know and understand about:</i> Temperate zone and Frigid zone. <u>SKILLS AND COMPETENCIES</u> - <i>Students would be able to perform:</i> <i>Map and Globe Activity.</i> <i>Involving the Competencies –</i> <i>Creative thinking</i> <i>Collaboration</i> <i>Communication</i>
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- She will then explain the lesson with the help of a globe. Class discussion for 5 minutes will take place followed by the reading of the chapter. The teacher elaborates the heat zones of the earth-Torrid zone, Temperate zone and Frigid zone. The teacher elaborates the longitudes and prime meridian with the help of diagrams. (page no. 12,13) Draw diagrams (Communication, Collaboration) Techniques to be used: Quiz Daily Practice Problem Student -teacher interaction, silent reading, collaborative learning, Research work/surveys

Resources	Text Book: NCERT text book for Social Science.
Self-Study, Home Work, Assignments	Independent Practice: Students would do the questions in their H.W notebooks as mentioned in the monthly planner. HW notebooks to be marked as per the given plan: <i>Assessment Parameters:</i> The total marks for the activity is 5 marks On time submission.....1 mark Presentation/ Neatness.....1 mark Content.....3 marks It is also advised that the students come to the class with proper background knowledge of the topic under discussion. They can refer to the resources stated above.
Assessments	Oral Test (5 minutes)

DAY 3	Topic- Latitudes and Longitudes
Class Transaction	(approx. 40 min each)
Pre-requisite for the course	RECAP <ul style="list-style-type: none"> • Do we have same time in all over the world? • Why do we have different time?
Assessment of qualifying knowledge	Facilitator will ask the students about: <ul style="list-style-type: none"> • Do we have same time in all over the world? • Why do we have different time?
Objective	Given the content (topic) the students will be able to explain the difference between latitudes and longitudes.
Learning Outcomes	KNOWLEDGE- <i>Students will know and understand</i> Students will be able to differentiate between latitude and longitudes. SKILLS AND COMPETENCIES- <i>Students would be able to perform:</i> <i>Map and Globe Activity.</i> <i>Involving the Competencies –</i> Creative thinking Collaboration Communication
Transaction Methodology	Transaction would proceed in the following manner-

(The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	<p>The facilitator will use digital content and explain the topic- why do we have standard time. It will be followed by explanation and reading of the chapter and explanation of latitude and longitudes.</p> <p><i>Guided practice followed by Independent Practice</i>- NCERT questions to be discussed in the classroom.</p> <p>Techniques to be used: Quiz Daily Practice Problem MCQ Peer Assessment Student -teacher interaction, Wipro- G.O.s(web chart, flow chart and differentiation table, compare- contrast matrix), silent reading, collaborative learning,</p>
Resources	Text Book: NCERT text book for Social Science.
Closure	Summarization by students with the help of web chart
Self Study, Home Work, Assignments	Independent Practice: Questions related to the topic done in the class.
Assessments	Oral Test (5 minutes)

DAY 4	Topic- Time zones of the world
Class Transaction	approx. 40 min each
Pre-requisite for the course	<p>She will ask the questions given below:</p> <ul style="list-style-type: none"> • What is the difference between the location of Tonga Island and Mauritius Island? • Are they located on same latitudes? • Then how they are different?
Assessment of qualifying knowledge	The facilitator will share the PPT and Digital Content of the chapter and elaborate the topic-Time zones of the world & Longitude and time (page no. 14,15-para-4). It will be followed by Class discussion for 2 minutes to recap the learning of previous day and check the understanding.
Objective	Given the content (topic) the students will be able to understand the difference between Standard time and Local time.

<p>Learning Outcomes</p>	<p>KNOWLEDGE- <i>Students will know and understand</i> Students will be able to</p> <ul style="list-style-type: none"> • Understand the Time Zones of the World. • Discuss the importance of Standard Time. <p>SKILLS AND COMPETENCIES- <i>Students would be able to</i></p> <ul style="list-style-type: none"> • Discuss about different time zones of the world (Critical thinking, Communication)
<p>Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)</p>	<p>Transaction would proceed in the following manner-</p> <p>Questioning- <i>Multiple level question-</i> Teacher will prepare a list of question related to different time zones of the world (Critical thinking, Communication)</p> <p><i>Introduction of the topic-</i> PPT and Digital Content would be shared</p> <p><i>Guided practice followed by Independent Practice-</i> NCERT questions to be discussed in the classroom.</p> <p>Techniques to be used: Quiz Daily Practice Problem Questioning Student -teacher interaction, silent reading, collaborative learning,</p>
<p>Resources</p>	<p>Text Book: NCERT text book for Social Science.</p>
<p>Self-Study, Home Work, Assignments</p>	<p>Independent Practice: Students would do the questions in their H.W notebooks as mentioned in the monthly planner.</p> <p>HW notebooks to be marked as per the given plan: <i>Assessment Parameters:</i> The total marks for the activity is 5 marks On time submission.....1 mark Presentation/ Neatness.....1 mark Content.....3 marks</p> <p>It is also advised that the students come to the class with proper background knowledge of the topic under discussion. They can refer to the resources stated above.</p>
<p>Assessments</p>	<p>Oral Test (5 minutes)</p>

DAY 5	Topic- Equator and its importance.
Class Transaction	(approx. 40 min each)
Pre-requisite for the course	RECAP <ul style="list-style-type: none"> • Why do we have standard time? • What is the importance of equator?
Assessment of qualifying knowledge	Facilitator will conduct Ball Toss to recap the learning of previous day and check the understanding.
Objective	Given the content (topic) the students will be able to explain about the Equator.
Learning Outcomes	<u>KNOWLEDGE</u> - <i>Students will know and understand</i> Students will be able to know about the equator and its importance.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- DOL1,2,3 Anticipatory Set: 10 min Facilitator will ask few questions to introduce the topic <i>Guided practice followed by Independent Practice</i> - NCERT questions to be discussed in the classroom. Discussion of topic through Collaborative Learning: 15 min Techniques to be used: Quiz Daily Practice Problem MCQ Peer Assessment Student -teacher interaction, Wipro- G.O.s(web chart, flow chart and differentiation table, compare- contrast matrix), silent reading, collaborative learning, Research work/surveys
Resources	Text Book: NCERT text book for Social Science.
Closure	Summarization by students with the help of web chart
Self-Study, Home Work, Assignments	Independent Practice: Questions related to the topic done in the class.

Assessments	Oral Test (5 minutes)
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Unit-III: Evaluation

Objectives of evaluation in Geography

Evaluation is defined as the estimation of growth and progress of the students towards accepted objectives and values. Evaluation process involves, testing the comprehension of the subject matter by the pupils. Evaluation helps a teacher to know, how far teaching-learning process remained effective.

The main objectives of evaluation in geography for the secondary stage are:

- 1) Knowledge
- 2) Comprehension
- 3) Application
- 4) Skills.

(1) Knowledge: It is defined as the remembering of previously learned material. It represents the lowest level of learning outcomes in the cognitive domain

In geography knowledge is concerned with the remembering of geographical facts, events, terms, concepts, principles, generalizations, hypothesis, problems, methods, trends, symbols, tools, techniques, processes etc.

(2) Comprehension: Comprehension is defined as the ability to grasp the meaning of material. It represents the lowest level of understanding. For comprehension knowledge is necessary. Comprehension is one step beyond knowledge.

In comprehension the students are expected to:

- a. Translate from one form of communication to another.
- b. Distinguish and differentiate between facts and terms.
- c. Compare and contrast.
- d. Explain different terms, concepts etc.
- e. Summarize.

(3) Application: Application is the ability to use the learned material in new and concrete situation. Application is only possible when the student possess knowledge and comprehension. Knowledge and comprehension are the pre-requisites of application. Learning outcomes in this area require higher degree of understanding than those of comprehension.

The student in application step is expected to:

- a. Analyze the situation to identify the problem.
- b. Select relevant knowledge to explain a new situation or solve a problem.
- c. Judges adequacy, relevance, essentiality, verifiability etc of data or any other evidences.
- d. Re-organizes the material in a new situation.

(4) Skills: Skill is an instructional objective which finds its place in cognitive or psychomotor domain. In this domain the students are expected to:

- a. Draws maps, sketches, diagrams and geographical structure to present geographical information.
- b. Presents models, tools and apparatus etc.
- c. Handles tools and geographical apparatus.
- d. Makes observation in an accurate manner.

Design of Question Paper (Blue Print)

A blue print is more detailed document on which question paper is based. While different blue print can be prepared from the same design, a number of question paper based on the same blue print will be more or less parallel.

Design of Question Paper (Blue Print)

Design is the basic layout or pattern of the question paper. Design is based on the following policy decisions:

1. Weightage to the Instructional Objectives: While designing the question paper, a paper setter has to consider the weightage to be given to the instructional objectives. The instructional objectives are knowledge, comprehension, application and skills in which student's level of achievement can be tested by a test.

2. Weightage given to the form of Questions: The question paper must contain all the types of questions i.e. essay type, short answer type, supply type and selection type like multiple choice type, true false type and matching type. Due weightage should be awarded to the different forms of questions.

3. Weightage to the Content: While designing a question paper due weightage should be given to the content according to its need and importance. For example the Central Board of School Education has prescribed the weightage to the content portion at 10th class level or secondary level.

4. Weightage to the difficulty level: While framing the question paper easy, average and difficult questions should be framed in proportion. The proportion of questions should be easy=20%, average=50% and difficult=30%.

Characteristics of a Good Question Paper

1. It should test the pre-determined objectives.
2. It should specify a particular task.
3. It should indicate the length of the answer.
4. It should indicate time and marks allotted to each question.
5. The content should be closely related to the objectives being tested.
6. It should have simple and comprehensible language.
7. It should have difficulty level according to the level of the class.
8. It should have a discriminating value to differentiate between below average, average and above average students.

Advantages and Disadvantages of Essay type questions

Essay type questions are subjective in nature. These questions require long answers from students. It gives them considerable freedom of response. The students answering these questions are free to select, organize and present the ideas in their own words. The learning outcomes that may be expected of students through such a question are related to complex set of behavior, which involve selection and organization relevant ideas and ability to express them in their own words. An essay type test by its very nature can include only a few questions say 4 to 5 to be answered in two or three hours. The ability like interpret, argue, explain, analyze and evaluate can be tested through essay type questions. The subjectivity of the essay type tests can be reduced by devoting sufficient time in constructing such questions, defining the directions and scope of answer desired, preparing a tentative scoring key before hand and adopt techniques of reduce scoring errors.

The essay type questions are characterized by the following directional words – discuss, describe, compare, contrast, state, evaluate, explain, elucidate, elaborate etc.

Advantages

1. The essay type tests are easy to prepare.
2. This type of test provides the examinee a scope to express his knowledge, attitude and skills.
3. Essay type tests provide a chance to examinee to express his ability. He finds an opportunity to use words, phrases, analysis, application of rules, principles etc.
4. The tests measure the creativity worth of students.

5. It fosters sound study habits.

Disadvantages

1. These tests are subjective in nature and require longtime and duration to answer and score.
2. These tests encourage cramming habits among the students.
3. It encourages selective study on the part of students.
4. These also suffer from validity because these are not generally objective based tests.
5. These also suffer from practicability and are not easy to administer.

Advantages and Disadvantages of short answer type questions in Geography

In the short answer type questions, the answer is to be given by the examinee. These questions require brief to the point and limited short answers. Generally the length of the answer is specified. These questions are thought provoking and to the point these questions offer a greater degree of objectivity than other evaluating techniques. These can be easily constructed by a teacher. The answer to these questions can be correctly administered. The scoring of these questions takes less time. More questions of such type can be asked within the same time limit. These questions help in covering maximum number of topics.

Advantages

1. These are easy to design.
2. Scoring is less subjective and easy.
3. The question paper becomes comprehensive and it covers entire syllabus.
4. This type of test discourages selective study.
5. This type of test can be used in almost all the objectives of teaching.

Disadvantages

1. These tests do not provide students chance to organize and present their ideas.
2. These tests cannot be used to measure the creative worth of students.
3. Personality traits cannot be known through short answer type tests.
4. The students do not find good chance to explain the meaning of words, phrases and application of principles etc.
5. The proficiency in the language development remains unexplored.

Advantages and Disadvantages of objective type questions in Geography

The tests which require students to write definite and precise answers or to select the correct answer from the given set of alternatives are called objective type tests.

The objective type tests can be divided into two broad categories:

1. Supply type tests and
2. Selective type tests.

(1) Supply Type Tests: The supply type tests require the students to supply rather than select the answers. The students have to write the answers by supplying certain words to fill in the blank spaces provided:

Supply type tests are of two types:

- a. Very short answer type
- b. Completion type.

(a) Very short answer type: In the very short answer type tests the answer is supplied by writing a word. Example –

Q. Name the lowest layer of atmosphere

Ans. Troposphere

(b) Completion type: In the completion type, the student is supposed to complete the missing word in the sentence. Example –

Q. _____ is the capital of Rajasthan.

Ans. Jaipur

The student in the supply type test has to recall the answer.

(2) Selective Type Test: In the selection type tests, the students to recognize and select answers from given set of alternatives. The given set of alternatives may range from to any number. The selection type tests comprise of:

- (a) True-false or Alternate Response type.
- (b) Multiple choice type and
- (c) Matching type tests.

(a) True-false or Alternate Response type tests: The true-false or Alternate Response type questions have two possible answers. The students have to select the answer by recognizing the statement to be true or false. Examples:

- Earth rotates from east to west (T/F)
- Mercury is the smallest planet of our solar system (T/F)
- Gandhinagar is the capital of Gujarat (T/F)

Scoring in such test is quite easy. There is a wide scope for guessing. In this type of test answer is specified and pre-determined. These tests cannot be judged objectively. Suppose on a test of 50 items, a student has attempted 25 items correctly, one cannot know whether the student scoring is due to guessing or it represents his actual learning outcome. These tests cannot be used to measure the students' knowledge. These tests can be said to possess high objectivity but low validity.

(b) Multiple choice type tests: In multiple choice type tests, the student is provided with more than two choices from which he has to select the correct answer. The following is an example of multiple choice type test:

The layer of the atmosphere which contains ions is:

- Troposphere.
- Ionosphere
- Exosphere
- Thermosphere

In this type of test item, just as in true-false type, the student is not given any freedom to write his answer, but he selects the best answer or correct answer from the given set of alternatives. Since there is complete control over the student's response, this test item is objective. Possibility of guessing the correct answer is considerably reduced. It is better than true-false with respect to reliability and objectivity.

A multiple choice questions consists of an incomplete statement or it can be given in the form of a direct question. The direct question or the incomplete statement is called the stem of the item; whereas suggested answers are called alternatives.

These questions are useful for measuring high learning outcomes, such as understanding, application etc.

(c) Matching type tests: In the matching type tests a number of statements, phrases or words are given in one column and a set of several alternatives are given in the another column. The students are supposed to match the words, phrases or statements in the two sets. But the B column should be longer than A column or the number of alternatives should be more than number of statements or words or phrases.

Advantages

1. These tests provide an easy system of scoring.
2. These involve minimum of writing.
3. These can be used to cover the whole syllabus.
4. These develop thorough study habits.
5. These tests discourage cramming and rote memory.

Disadvantages

1. These tests are difficult to design or construct and require tremendous efforts on the part of the paper setter.
2. These tests encourage guess work.
3. These tests cannot measure the student's knowledge.
4. These tests fail to measure the personality traits.
5. The writing skill is not encouraged.

Importance of Continuous Evaluation

Most of the educationists consider evaluation as a continuous process of assessing the achievements and abilities of students and analyzing the merits and demerits of the total education system and providing feedback for its improvement. This process starts from the day the child is admitted to the school, because as soon as he is admitted, the teachers have to arrange the teaching learning process according to his needs and abilities keeping in view the objectives of education. They have to continuously keep on observing and assessing whether the education process is successful or not and whether the desired changes are taking place in the students or not. The tests given at short interval are in-fact a part of evaluation. In short a continuous process of evaluation is useful not only for students and teachers, but also for administrators, educationists and policy makers. Its main advantages and importance are as follows:

(1) **Ascertains the Progress of the Students:** Evaluation is an index of student's achievement. It tells how much progress has been made by a student during a specified period of time and of what quality. It tells the teacher whether he is progressing in the right direction whether the desired changes are taking place among the students.

(2) **Inspires and motivates students:** Tests inspire the students normally students do not want to study. But as soon as the test approaches they begin to study. If there are no tests, in which tests are not held or the subjects in which it is not obligatory to pass students do not take interest in those subjects. In this way tests inspire and motivate the students and they start learning.

(3) Diagnoses the weaknesses of Students: It is the duty of the teacher to guide the students. But unless he knows the weaknesses of the students he can not guide them. The students must also know their weaknesses for making progress. Most of the students fail to know their weaknesses in day to day work. Those who know their weakness feel shy of telling them to their teachers. They try to hide it which becomes a hindrance in their personality development. Continuous evaluation makes them conscious of their weaknesses.

(4) Evaluation reveals the interests of the students: Evaluation indicates the interests of the students in particular subjects. Then only teacher can try to improve upon those interests. It is only on this basis that decision can be made about the future vocation of a student. Most of the parents are unaware of the ability and interests of their wards and they have high expectations from them, but evaluation tells them about the real position. Now a days emphasis is being given on educational and vocational guidance. For this various Intelligence, Aptitude, Interest and Achievement tests are given. All these are various methods of testing. It proves that evaluation tries to know about abilities and interests of the students.

(5) Grades the Students: Evaluation helps in grading the students into different level or categories. Which student is suitable for what level, is decided through evaluation. There are tests at the end of each academic selected session and students achievements are evaluated. Those who pass are promoted to the next class and those who fail have to repeat the course.

Significance of Construction of Achievement test items

A test is defined as a standardized situation designed to elicit a sample of individual's behavior.

Tests are classified as;

1. Test of ability
2. Test of typical performance and
3. Educational achievement test.

Educational Achievement Test

Educational achievement test is designed to measure knowledge, comprehension, application and skills in a specified subject or group of subjects. It also includes educational results as attitudes, appreciations, ability to solve problems, to draw inferences from subject matter, to apply generalization to specified situations and problems.

How to Construct Test Items

The following steps are involved in developing the balanced and objective based questions:

(1) Instructional Objectives: The instructional objectives include cognitive, affective and psychomotor domain. Cognitive objectives include knowledge, comprehension, application, analysis synthesis and evaluation. Affective objectives include habits, attitudes, interests, feelings, values, thinking, appreciation etc. psychomotor or co-native objectives various types of skills.

Form of Questions: The questions have two forms.

Free response type.

Fixed response type.

The free response type include essay type or long answer type and short answer type questions.

The fixed response type or objective type questions include supply type tests and selection type tests. In the supply type questions, the students are supposed to supply the answers. The selection type tests include true-false type or alternate response type, matching type and multiple choice types.

Thus, a balanced question paper must contain essay type, short answer type and selection type questions.

(2) Content Analysis: A teacher must have deep and thorough knowledge of geography content, in which questions are to be developed. Different content is needed for various types of items while designing a question paper due weightage should be given to the content according to need and importance.

(3) Language of Question: The language of questions should be simple, clear, concise and unambiguous. The student must easily understand what the question asks.

(4) Directional Words: The questions must contain simple directional words like explain, describe, discuss, etc. and not words like elucidate, elaborate, enumerate, outline etc.

(5) Difficulty Level: The question paper must contain easy, average and difficult questions. The proportion of questions should be: easy=20%, average=50% and difficult=30%.

(6) Marking Scheme: Answer should be given in a Performa. It must contain marking scheme, value points and total marks.

Unit—IV: General Geography of World

Natural Environment

Environment literally means surroundings of an object or an organism. The natural environment in which man finds himself is composed of land, water and air constitute the physical environment and plants and animals constitute biological environment of man. Man is dependent both on physical and biological environment for his survival. Without natural environment survival of man is impossible on the surface of the earth. The relationship between man and environment has varied from the early periods of human settlement on the surface of the earth to the present day. This relationship also varies from place to place.

Components of Environment

There are three basic components of environment. These include (1) Abiotic (Physical or inorganic) components (2) Abiotic (organic) components, and (3) the component of energy.

The abiotic components consist of (i) Lithosphere (the physical space) (ii) Atmosphere (climate etc) and (iii) Hydrosphere (water).

1. The Biosphere: That part of the earth where the life exists is known as biosphere. In fact, all the three terms of environment, ecosystem and biosphere have been used to convey almost the same thing (meaning). Horizontally, the biosphere covers the entire globe, though the life may not be possible in some of the hottest and coldest parts. Moreover, the earth has a total area of 510 Million km² of which 71 % is covered by oceans and only 29% by the landmass. Vertically, the biosphere extends from the deepest part of any ocean (about 36000 feet below the sea level) to at least 32000 feet above the sea level (a height upto which some bacteria and fungi can be found floating in the atmosphere).

The biosphere is a unique feature of the earth. Other planets, except probably Mars, are not likely to have any trace of life.

Thus, the biosphere is essential both for the sustenance of life and march of human civilisation.

2. The Lithosphere: The word 'lithosphere' is generally restricted to the earth's solid but relatively thin crust which envelops the interior of the earth, viz., the barysphere. The average thickness of the lithosphere is 60 kilometres. The thickness of the earth's crust is greater in the continents than on the ocean floors. Rocks forming the earth's crust are of lower density than those below the crust. The density increases with depth, and well-marked shells or layers may be distinguished in the interior of the earth. Shells are (i) Sial, (2) Sima, and (3) Metallic Core. The core of the earth is believed to be metallic, consisting predominantly of nickel and iron.

3. The Hydrosphere: Hydrosphere is another important component of the biospheric environment. Water is essential for all types of life on the earth's surface. The term hydrosphere refers to oceans plus their extension into other realms like water vapors in atmosphere, the lakes and the rivers, water in the soil and in deep layers of water beneath the earth's surface (ground water). The water locked up in ice caps and glaciers. The hydrosphere plays an important role in the circulation of nutrients within various components of the environment. It is also responsible for bio-geochemical cycle and hydrologic cycle.

Layering structure of Atmosphere

The air envelope that completely surrounds the earth is called the atmosphere. The earth is a unique planet in that it has an atmosphere containing oxygen in abundance. This fact has been responsible for the origin and growth of life on the earth. Though the atmosphere extends a little beyond 1600 kilometers from the earth's surface, 99 per cent of the total mass of the atmosphere is within 32 kilometers from the earth. The atmosphere is held to the earth by the gravitational pull.

The atmosphere is made up of a mixture of gases. An average sample of pure dry air consists of nitrogen (78 per cent), oxygen (21 per cent) and argon (0.9 per cent). Other gases, such as carbon dioxide, hydrogen, helium and ozone, are present in small quantities. The composition of the atmosphere is relatively constant in the lower layers of the atmosphere. Besides these gases, the atmosphere contains variable quantities of water vapor in the lower layers. Most of water vapour content of the atmosphere is derived from the evaporation of water from oceans, rivers, lakes, etc. Some of it gets condensed and gives rise to various forms of precipitation. Water vapour is an important constituent of the atmosphere though it may not exceed 3 to 4 per cent of the total volume of air at any given place. Clouds are visible evidence of the presence of water vapour in the atmosphere. The water-vapor content of the atmosphere varies from place to place and from time to time. Solid particles, like dust, carbon particles, salt, pollen grains, etc., are also found in the atmosphere.

The atmosphere has maximum density near the earth's surface and the density decreases with height. There are four distinct layers in the atmosphere. The lowest layer is known as troposphere. Most of the weather phenomena take place in the troposphere. In this layer, the temperature of air decreases with height at an average rate of 10 C for 165 meters. The limit of the troposphere is a height of 18 kilometers above the equator and about 8 kilometers above the poles.

Beyond the troposphere is a zone called the stratosphere in which temperature remains constant and then gradually increases with height. The troposphere separates the stratosphere from the troposphere. The stratosphere is free from clouds and the associated weather phenomena. It provides ideal flying conditions for large jet airplanes. The thickness of the stratosphere is about 50-55 kilometers. The stratosphere has a rich layer of ozone. This layer absorbs harmful ultra-violet radiation from the sun.

Above the stratosphere is the zone called ionosphere, containing electrically charged particles called ions. These particles reflect radio waves back to the earth's surface and enable wireless communication. The uppermost layer of the atmosphere is called the exosphere and its density is

extremely low. The exosphere extends beyond 1000 kilometres and gives way to inter-planetary space.

The atmosphere acts as a blanket for the earth. The incoming solar radiation and outgoing radiation from the earth are affected by the atmosphere. The water vapor and carbon dioxide in the lower layers of the atmosphere absorb the heat radiated from the earth's surface and keep the atmosphere warm even during night. The extremes of temperature between day and night would be much greater if there were no atmosphere. The differential heating up of the atmosphere by the sun's rays produces circulation in the atmosphere leading to winds and precipitation. The plant and animal life are in harmony with seasonal changes in weather phenomena.

Major Natural Regions of the World

Many schemes have been suggested for dividing the world into major natural regions. The scheme suggested below takes into account the major regions which are easily defined.

1. Equatorial Region: This region extends from the equator to about 10° North and 10° South latitudes. The region has hot and humid conditions throughout the year. The annual rainfall exceeds 150 centimeters. The forests contain broad-leaved evergreen trees with a variety of species. There is a thick undergrowth of plants between the trees. The Amazon basin in South America, the Congo basin in Africa, Malaysia and Indonesia are the main areas which belong to this region. The impact of man on the environment is minimum in the Amazon basin where there are still large areas almost entirely uninhabited by man. On the other hand, in the island of Java in Indonesia, forests have been cleared and intensive cultivation supports a very high density of population.

2. Tropical or Savanna Grassland: This region extends on both sides of the equatorial region up to about 25° North and South latitudes. The area experiences hot summers and warm winters. Annual rainfall varies from 100 centimeters near the margins of the equatorial region to about 25 centimeters where it begins to merge with the hot desert regions. Rainfall also decreases from the coast to the interior. The main areas are in Africa and South America. The most extensive type of vegetation is tall, coarse grass. There may be scattered trees in the area. In areas of higher rainfall and river valleys, trees are more numerous.

3. Monsoon Region: This natural region is spread over a wide latitudinal extent both in tropics and temperate regions. The reversal in the wind direction with the change of seasons is its characteristic feature. Winds become on-shore during summer bringing rains in their wake. During winter winds become off-shore giving these lands cool and dry winters. Broad-leaved deciduous trees are typical of this region. The Indian sub-continent, South-East Asia and parts of Australia are the major monsoon regions of the world. The Asian monsoon region supports nearly half the world's total population.

4. Tropical Deserts: Tropical deserts occur on the western margins of continents on either side of the Tropic of Cancer and the Tropic of Capricorn. Summer temperatures are high throughout. Annual rainfall is usually less than 25 centimeters and is highly variable. Scattered patches of thorny shrubs or bushes are found. Large areas are barren, consisting of sandy or rocky deserts. Sahara, Arabia and Western Australia are tropical deserts of great extent. The Thar and the Great

Rajputana desert in the Indian sub-continent belong to this natural region. The Atacama and Kalahari deserts in South America and Africa respectively, are relatively small. Most of the desert areas are uninhabited except for irrigated areas like the Nile Valley.

5. Coniferous Forest: This region extends from 55° North to the Arctic circle and includes extensive areas in the Soviet Union, Scandinavia, Canada and Alaska. The region has cool summers of short duration with long cold winters. Annual rainfall is less than 50 centimeters and is maximum in summer. The vegetation consists of trees with needle-like leaves and there are only a few species. The impact of man on this region has been found only in accessible localities where the forest has been cleared for the manufacture of wood pulp, paper and newsprint.

Classification of the Resources

Natural resources may be classified in several ways. They may be classified on the basis of their sources of origin. For example, most of the minerals are obtained from the land. Salt and fish are the resources available from the oceans.

1. Renewable Resources: The resources which can be renewed or reproduced by physical, mechanical and chemical processes are known as renewable resources. Solar energy, water, air, soil, forests, wild life, agricultural products and human beings are some important examples of renewable resources. But we have to take precautions to maintain the renewability of these resources. For example trees are felled for obtaining wood from the forests. But we can get the uninterrupted supply of wood only if we maintain the original forest cover through afforestation. In other words we will have to plant the equal number of trees which have been cut down.

2. Non-Renewable Resources: Non-renewable resources are those resources which once used, cannot be easily replenished. All minerals belong to this category. They are exhausted quickly but their formation takes thousands and sometimes lakhs of years. Coal, petroleum, natural gas, iron ore, copper, aluminum, bauxite, uranium, thorium, etc. some examples of non-renewable resources.

3. Potential Resources: Potential resources are those whose entire quantity may not be known and these are not being used at present. These resources could be used in future. The level of technology we have at present may not be advanced enough to easily utilize these resources. Potential Resources are known to exist and may be used in the future. For example, petroleum may exist in many parts of India and Kuwait that have sedimentary rocks, but until the time it is actually drilled out and put into use, it remains a potential resource.

4. Developed Resources: When the resources are properly surveyed their quantity, quality and utility are determined with the help of available technology referred to as developed resources. Fossil fuel resources, solar energy, hydro power, geo thermal, and wind are examples of developed resources.

Distribution and Utilization of Resources

The resources may also be classified on the basis of their continued availability to serve the needs of man. Some resources, like those obtained from agriculture, may be obtained continuously year

after year. These are called replenishable resources. Such resources do not get exhausted. Mineral resources may get exhausted after some years. Oil wells and coal-fields are abandoned after a few years. These resources are non-replenishable resources. There is a limit to the availability of such resources in the earth. Following are some important natural resources:

1. Land Resources: Land is an important resource as it is put to diverse uses by man. It is used for the construction of buildings, roads, railways, etc. It is also used for cultivation, the grazing of animals, mining, industries, etc. The type of land-use varies from one region to another. The physical characteristics of the land put certain limits to its use. Like steeply sloping land is not suitable for cultivation. The slope of the land is an important factor in deciding the land-use of an area. The construction of roads and railway lines is also related to the topography of a region. Accessibility is an important factor affecting land-use. For example, Canadian prairies developed only after the construction of railway lines and roads. Land use in an area also depends on the mode of life of the people-living in the area. Land-resources available in an area are limited and there is a great demand for land especially in densely populated regions. In a given region different types of land use compete with one another. The same piece of land can be used for cultivation or for the construction of buildings, or setting up a factory or for mining, or for providing recreation.

2. Soil Resources: Soil is the most important natural resource available to man. It is the substance in which all types of plants grow and therefore, soils are indispensable for providing food for man and animals. The soil layer consists of a mixture of mineral matter such as sand and clay, as well as organic matter such as the decayed leaves, flowers, bacteria and earthworms. Soil also contains varying amounts of moisture and air between the solid particles. The formation of soil on the surface of the land depends on a number of factors. Climate is the most important factor for soil formation. It is responsible for the weathering of rocks, the quantity of moistures in the soil layer, the nature of vegetation and the bio-chemical processes which take place in the soil. In short we can say that soil is the most important gift of nature to man. The growth of human life and development of human civilization largely depend on soil.

3. Forest Resources: Thick growth of plants, trees and grasses in natural way is called a 'forest'. In early stages, about 25% of earth's surface was covered by forests. But increasing demands of man for forest-products and land for agriculture has reduced to the forest cover of the world to just 15% of the total land area.

4. Fisheries: The Occupation of fisheries concerns catching fish from water. Man learnt fishing much before he learnt hunting and agriculture. It is one of the oldest occupations of man. Fish provide about 3% animal products and 23% of animal proteins used by man. Countries like Japan, Norway, New Foundland of Canada and Iceland with rocky land and infertile soil obtain about 10% of their food requirements from fish. Besides being a rich source of protein, fish is also used for preparing poultry feed, fisheries and oils.

Conservation of Natural Resources

Conservation means wise use of world's natural resources efficiently to produce the greatest possible benefit to man over the longest possible period of time. These resources are to be used

properly without any waste. They must also be replenished whenever possible. Therefore, conservation is more than just preserving or a denial of use. With the passage of time human needs increased and advancement in science and technology took place. This led to over utilization of natural resources which resulted in their exhaustion and depletion. In the present, our needs have gone beyond the means to fulfill them. This has led to a serious problem for the future generations. While it is our right to use the natural resources for meeting the needs of the present generation, it is our moral duty to conserve the resources for the benefit of the future generations.

Man realized the importance of conserving resources right from the early days. Cutting of trees, killing of animals and destroying the environment is still considered to be bad in many religions. Earlier when a tree was cut, another was planted and thus preservation was practiced. Terraced fanning in hilly areas is an ancient technique. It was and is still a good device to check soil erosion minerals are the back-bone of modern economy. It should be remembered that the concept of exhaustibility of resources is always linked with level of technology. It is possible to extract minerals from greater depths but that will require higher and expensive technology. At present we have some alternatives like: firstly, the development of advanced technology and secondly, the use of alternative sources of power. Efforts are already on to develop solar power, Wind power and Water power. At present there is a fast -growing awareness all over the world to conserve resources.

Unit-V: Population & Occupation

Population Distribution

The way in which people are spread across a given area is known as population distribution. Geographers study population distribution patterns at different scales; local, regional, national, continental and global.

People do not live evenly spread through the world. For example large parts of Australia are very sparsely populated (low population density), whereas areas in the south-east and around Perth are crowded (high population density).

Humans vary widely in their tolerance of environmental conditions. Some can survive in several types of habitat, whereas others perish when removed from their natural surroundings. No animals other than humans can create sufficient artificial changes to enable them to exist in a totally strange environment without evolving through many generations of adaptation. The specific interactions of humans with their environment are the subject matter reason for the world distribution of man. So, the studies of the distribution of human life, using ecological principles to explain the patterns of that distribution.

Physical and Non-physical factors affecting population distribution

The distributional pattern of population is ever changing and both cause and effect vary in time and space. The main factors which affect the population distribution can be classified into two main groups:

(a) Physical Factors

(b) Non-Physical Factors

(A) Physical Factors:-

(1) Location: The geographical location plays a significant role in determining the regional pattern of population distribution. It is observed that the main concentrations of people throughout the globe are marginal to the continents and the interiors tend to be sparsely populated. Nearly 75% of the world's population is concentrated within a 1000 kms of the Coast and about 66% of this is confined within 500 kms. Thus it is evident that population is attracted by coasts and to a greater extent repelled by continentality.

(2) Relief: Relief exerts great influence upon the distribution of population in different parts of the world. High and rugged relief restricts human access, habitation and cultivation. Almost all the mountainous regions of all the continents are very sparsely populated. The relief features i.e., Mountains, Plateaus, and Deserts are either sparsely populated or there is no population.

(3) Climate: Climate is the most important factor that controls the distributional pattern of population in the world. Climatic conditions limit the habitable area of the earth. Climate also

influences more indirectly by controlling the wide range of his life conditions dependent upon the plant and animal life about him. Indirect influences of climate are equally important because they determine the types of soil, vegetation and agriculture, which in turn influence the distribution of population in the world.

(4) Drainage: Water is often referred as elixir of life. Water is essentially needed both for human consumption as well as cultivation. Water is an important resource and it is used for irrigation and industry. The availability of water varies from place to place and time to time. Human life cannot survive without the supply of water. Accordingly, human beings have always preferred to live in those regions where there are plenty of water resources, but has been so controlled that it does not devastate. It is a historical fact that all world civilizations, have developed on the banks of rivers like Indus valley civilization, Nile valley civilization and Hwang Ho civilization etc. It has been observed that in ancient past, all important cities of the world were found near riverbanks.

(5) Soils: Matured and fertile soils have always attracted people to settle. The soils of the world's grassland particularly in the middle and sub-tropical latitudes, and those of the broad leaf forest in the middle latitudes generally favour relatively dense settlement. The fertile alluvial soils of the deltas of south-East Asia and the Nile have supported-dense population from time immemorial. Soil conditions often act as a micro-factor. They not only control the cropping pattern but also population distribution. Depletion of soil resources, on the other hand, restricts population concentrations. In areas where soils are not ideal for crop cultivation, the soil is always discarded. That is why, the areas with-rocky terrain support a very sparse population. On the other hand, the plains and coastal areas, with rich and fertile alluvial soils, support maximum populations on the earth. The indo-genetic plain in India, Hwang Ho valley of china and Nile valley of Egypt are overcrowded since historic past.

(B) Non Physical Factors

(1) Socio-cultural condition: Social and cultural conditions do influence the distribution of population throughout the world. The societies where customs, culture and social restrictions are very rigid, the people try to settle down at other places and thus add to the population of that area. Similarly, people who share the same cultural heritage, ancestors and fore fathers settle down at one place and increase population.

(2) Economic Conditions: The economic activities are responsible for the settlement of people in various parts of the earth's surface. In areas, where there are more chances of employment with good economic returns, the population is always thick. Population distribution in an Agrarian Society often responds to the type of staple food and its relationship to physical conditions. In contrast, livestock economies are normally associated with low population density. Compared to agricultural society, an industrial society can support denser population. The process of urbanization is of great importance in modern times as people tend to live in urban than rural areas, due to high standard of living and better facilities of life in cities.

(3) Political Conditions: The people are very sensitive with respect to their political ideology. People often seek political asylum in other countries as the country of their origin is not suited for

their political activities. Great number of people have shifted to India from East Pakistan during 1971 indo-pak war. Similarly people from Tibet migrated to India to settle down here. In the same way during Afghan crisis people from Afghanistan migrated to settle in Pakistan.

(4) Historical Background: People generally do not want to leave their place of origin due to human weakness. Once settled at a place, he continues to remain there unless and until change is unavoidable. Thus the people who in the past settled down at one place, their off springs continue to remain there, adjusting themselves to the problems and try to solve them, rather than leaving the place.

(5) Desire for Knowledge: Intelligent and talented people often migrate from the country of their origin to other countries for seeking knowledge. Once they feel that the conditions are favourable for them, they settle down there. Doctors, Engineers and IT professionals from underdeveloped countries migrate to affluent European and American states, where they become citizens of that country after sometime.

Population Density

Population density means average number of people living per square kilometer. Population density is the measurement of population per unit area or unit volume. It is frequently applied to living organisms (humans). For humans, population density is the number of people per unit of area (which may include or exclude cultivated or potentially productive area). Commonly this may be calculated for a county, city, another territory, or the entire world.

The world population is 6.6 billion humans, and earth's area is 510 million square kilometers (200 million square miles). Therefore the world-wide human population density is $6.6 \text{ billion} / 510 \text{ million} = 13 \text{ per km}^2$ (33 per sq mi), or 43 per km² (112 per sq mi) considering that humans live on land, which forms 150 million km² (58 million sq mi) of the earth. This density rises with the population growth. It also includes all continental and island areas, including Antarctica. Since over half of the earth's land mass is desert and high mountains hostile to human habitation, only a fraction of the rest is arable, and population clusters heavily around seaports and fresh water sources, this number by itself significantly understanding the level of humans crowding.

Density of the Population in the World

The population of the world can be recognized into three distinct density Zones on the basis of their distribution. Density of the population is defined as the number of people residing in one sq.km area of the earth's land surface. The density Zones of the world are classified as:-

(1) Highest Density Zones: Zones with more than 250 persons per square kilometer. The high density Zones of the world are scattered following are some areas of high population concentrations: (a) Western and Central Europe (b) North-Eastern areas of USA (c) South Asia (d) South East and East Asia (e) The Nile Valley; etc.

(2) Moderate Density Zones: Zones with 25-250 persons per square kilometer. The regions with moderate density population are characterized by neither too harsh nor too favourable

environmental conditions. This includes the cold temperate forest region which has recently been cleared for agricultural activities. Similarly, the tropical and temperate grasslands are recognized as moderately populated areas. This moderate density Zone, comprises of two distinct types of human-settlements.

(a) The 'Old World' of Asia, Africa and Europe.

(b) The 'New World' of America and Australia.

The moderate population density Zones are the regions engaged in extensive agriculture, pastoral way of living and industrial development.

(3) Lowest Density Zones: Zones with 0-25 persons per square kilometer. The low density regions include 80% of the total land area, which is either too rugged, hot or cold, wet or dry for people to settle in large numbers and engage in productive activities.

The regions with the lowest population density are:-

(a) The polar ice caps and the tundra regions of Eurasia, North America and Antarctic.

(b) The deserts of Sahara and the Kalahari of Africa, the Atacama desert of Chile, the great Australian desert and the desert areas of South-West USA and Central Asia.

(c) The equatorial rain forests of the Amazon Basin, the Congo Basin and the Interior forest areas of the Indonesian arch, belago are also very sparsely populated.

Only a small number of nomads inhabit the above inhospitable areas in the world.

Demographic and Geographical factors affecting population density

The uneven distribution of population in the world and India is the result of a number of factors. All these factors can be grouped into three categories:

A. Geographical Factors (Physical Factors)

B. Economic and Social Factors.

C. Demographic Factors.

A. Geographical Factors (Physical Factors)

1. Climate (Temperature and Rainfall): Human life is difficult to sustain under extreme conditions of temperature and hence such areas are sparsely inhabited e.g. Arctic and Sub arctic Regions have long cold winter nights and low intensity of solar radiations. In summer also, living conditions are very difficult. Rainfall and other sources of water supply like rivers, wells etc determine largely the population distribution. There are deserts where there is no population at all due to any supply of water. Ancient civilization flourished on the banks of rivers.

2. The Nature of the Terrain: In mountainous regions, the population density is low. The area of arable land is limited. Cost of transportation, construction, maintenance of agricultural equipment etc is high in mountainous areas. Human activity is also affected due to high attitude. Low-lying plains are most favourable to population settlements.

3. Quality of the Soil: Quality of the soil also affects population distribution. Soil quality can be divided into two categories

4. Energy Resources: Energy resources also determine the population density e.g. Water power for generating electricity, Coal, Minerals.

B. Social and Economic Factors

Social and economic factors that affect population distribution are listed below:

1. Nature of Economic Activity: The population density is more in urban areas and less in rural areas. The nature of activities in urban and rural areas determines the population distribution. In urban areas activities include whole-sale and retail trade, manufacturing, finance, business. Agricultural activities are the main activities in rural areas.

2. Nature of Technology: Technological advancements are also affecting population distribution. The areas which were earlier not much populated may become heavily populated due availability of technology.

3. Social Policy: Social policy of the government is a factor that determines population distribution. For example, Steel plants were developed at Durgapur and Bhilai. The population in these areas increased due to these steel plants. Steel towns developed due to employment. People migrate to those areas where employment opportunities are available. The creation of employment opportunities depend upon the social policies of the government.

C. Social and Economic Factors

There are three demographic factors that affect the population distribution:

(1) Fertility

(2) Mortality

(3) Migration

The above factors are themselves determined by geographical and socio-economic factors. Differential fertility and mortality rates lead to differential growth rates and these in turn lead to changes in the population of a country over long period of time. Migration is the most important demographic variable that affects population distribution and density. People migrate to centers/places where there is employment opportunities (may be due to industries or other factors).

India's Population Composition with reference to Age and Sex

Population Composition is a very important aspect of the population study. This includes the personal, social and economic characteristics including age, sex, race, nationality, religion, language, literacy, employment, rural and urban, etc. each population may be classified into different groups, according to the above mentioned characteristics.

Age Structure

Age structure of the population of a country indicates the extent to which the population of that country is useful from the economic point of view. The relative age structure of people contained within a specific age group is one of the most vital and basic characteristic feature of population since it affects almost all the different dimensions of community life, social attitudes, political tendencies, economic activities, military services, and mobility of population.

Human population is divided into three groups.

- (1) Below 15 years of age.
- (2) Between 15 and 60 years of age.
- (3) Above 60 years of age.

The first group is of children supposed to be entirely dependent on parents. The second group consists of adults or workers who are supposed to be economically independent. The third group comprises old people returning back to category of non-workers. The division of population into these groups is referred as population pyramids.

In India, as per 1981, census, this threefold division was as follows:-

Age	Percent
0-14	39.5
15-59	54.3
60 and above	6.2
Total	100%

Taking the first and the third group together i.e. $(39.5+6.2) = 45.7\%$ of our population is taken as Dependent Population.

The remaining population of 54.3% has to support this dependent population. The proportion between the two is termed as Dependency ratio. In India the dependency ratio is about 83, which means that in every 100 persons in the age group of 15-59 years have to support 83 persons who

are dependent on them. The children below 15 years of age are bound to be highly demanding in terms of educational, nutritional and health needs.

The dependency ratio is very great in India as compared to more developed countries of the world. Thus the country becomes economically weak.

Sex Ratio

The sex ratio is the common measure used to study population composition of any population. Human population consists of two main components-male and female. The numerical proportion between the two is known as sex ratio. Sex ratio is defined as the number of females per 1000 males. In India for the past century males have been increasingly outnumbering female population. According to 2011 census, sex ratio in India was 940 females to 1000 males. With unfavourable sex ratio, the female life expectancy too has been low as compared with the males. The average life expectancy at birth for females is 56.4 against 55.6 for males.

Though India as a whole suffers from a deficiency of females, there are some states which suffer from deficiency in male population. The examples are Kerala, Pondicherry etc. Jammu & Kashmir, Punjab, Haryana has less number of females as compared to males. According to 2011 census, sex ratio in these states was 883, 893, 877 respectively.

Reasons for the growth of higher number of males than females

In India, some of the factors which are responsible for the unusual growth of higher number of males than females in the total population are as follows.

(i) Higher Mortality of Females: The main cause of low sex ratio in India is that the female death rate is more than male death rate. From various studies on death rates indicate that there is higher female mortality.

(ii) Social Conditions: In our country, social factors are unfavourable to females. People do not want girl-child. If a girl dies none bothers for that.

(iii) Poor Medical Aid: The health and medical facilities for females are generally not cared. A large number of women die at the time of delivery.

(iv) Inferior Status to Women: Some parents give preference to male children and at least they want two sons before adopting the method of family planning.

Population composition in India with special reference to rural and urban dichotomy

The population of any country on the earth's surface is distinguished into rural and urban categories. The urban population is recent in origin, as the majority of the population since historical times was confined to rural areas. All rural people who inhabit small villages from which the farmers who constituted about 90% or more of the village population were engaged in cultivation of land, to produce food products in order to sustain their life. The small towns of the early period had comparatively little direct influence on the lives of the peasant who constituted

about 85% of the total population. For well over a century a trend towards urbanization has characterized the major nations of the world. This growth has been a natural accompaniment of trade, commerce and manufacturing. It has led to the aggregation of millions of people in small areas and consequently to new type of social experience for the people. Developing countries with agrarian economics consist mainly of rural population, while in developed and industrial countries most of the people are confined to urban settlements.

Rural population confined to small hamlets and villages depends upon agricultural economy, which involves maximum unskilled labour, who live in villages. Each village is a cluster of shabby houses constructed in an irregular fashion without any plan. The houses are mostly made up of mud walls, cheap wood and thatched roofs. There is no proper arrangement of sanitation and drainage system in a village. In most of the villages, where wells are the main sources of drinking water, are generally shallow, open and not far from sewerage spots. The water of these wells is invariably contaminated and is the main cause of gastric and other diseases. The villages are mostly devoid of facilities like hospitals, post offices, telephone and other technological devices. The system of roads and transport is not developed at all in the villages. The life is slow, calm and peaceful with little scope for competition. The villages lack civic amenities, employment and educational facilities.

The urban sector is the agglomeration of towns and cities, which is the result of the industrialization. The cities and towns are the centers of administration, commerce, industry and education. As towns expand, the pressure of transport water supplies, sewage and refuse disposal, grows and creates problems. In cities and towns, the problem of pollution is alarming due to the smoke and chemical effluents from factories and vehicles which pollutes both air as well as water, making it hazardous for human life. On the other hand, cities and towns provide amenities like market, entertainment, and better social services. For this reason, there is steady movement of people from villages to towns and cities. The growth of cities which to a large extent, is due to immigration is responsible for problems of housing, water supply, sanitation, parks, playgrounds, schools, hospitals and other public services.

The urban areas share some common characteristics i.e., higher number of males, higher literacy and higher proportion of people employed in non-agricultural occupations.

The rural-urban divide of population in a country signifies its national character. It is generally believed that people inhabiting villages i.e., rural areas are often lethargic, conservative and impervious to new and novel ideas. On the contrary the urban classes are active, alert and resourceful. It is from the cities that all progressive and innovative ideas float and radiate.

Factors affecting population growth in India

Rapid population growth in the world can be attributed to a number of factors. Most countries suffer from the pressures of population upon resources, and find it extremely difficult to overcome the problem of raising productivity.

The main factors which affect the population growth in any part of the world are classified as:-

- (1) Fertility
- (2) Mortality
- (3) Migration (Mobility)

Fertility

Fertility or birthrate in India is very high as compared to the other countries of the world. Number of children born per thousand persons in a year is called birth rate. According to 2001 census, birthrate in India is 26, it means that in India, 26 babies are born per thousand in a year. In England it is 12 and in U.S.A. the birthrate is 18. Fertility is the natural capacity of giving life. Every man and women has the capacity to produce children, i.e. they are fertile. In the words of Lewis and Thompson fertility is defined, "as the actual reproductive performance of a women or group of women".

Factors Affecting Fertility

Every man and women has the capacity to produce children i.e., they are fertile, though exceptions are there. There are however, many factors, which affect and influence the fertility of both the sexes. In the past, the people were not interested in checking or controlling child birth, but in the present day world, the people of the elite class in urban areas are keen to have a limited or a nuclear family. They are, following family planning or family welfare devices or with the help of means including abortion to check the family size. A family of two children (boy and girl) is today considered a normal family, though some people still like to have only one child either Male or female. There are people, who do not at all like to have a child though they are leading a married life and have capacity to produce children. The main factors, which affect the fertility process of both the sexes (male & female) may be discussed as under:-

(1) Biological Factors: Biological factors play a vital role in the process of fertility. Health of an individual is the most important biological factor and with it are related the factors like disease and food habits etc. When health conditions and living standards of the people are sound and high, the fecundity also increases and in this way the death rate slows down. It has been observed that the death rate in developed countries is very slow as compared to the death rate of poor and under developing nations of the world.

(2) Direct Factors: The direct factors which influence and effect fertility include use of oral pills, loops, condoms, and other unnatural measures of abortion and infanticide etc. In every society there is a keen desire and tendency among people that the family size should be small and population explosion should be checked, otherwise many economic social and political problem are bound to arise. Thus the most important direct factor which effects fertility is family planning/family welfare drive in every society.

Mortality

Number of persons dying per thousand in a year is called death rate or mortality rate. Mortality rate is regarded as an index of the well being of a nation. The countries which are economically sound and where people enjoy high standards of livings have a lower death rate than the countries which are economically backward. The advanced countries have succeeded to lower their death rate due to availability of food supplies, pure drinking water, health care, better sewage disposal and clean environment. Mortality rate was used to be very high in the past, because people were not much conscious and careful about their health, as the medical care was not readily available. It is believed that Romans were the first people, to collect data regarding deaths during 3rd century.

Factors Affecting Mortality

Mortality or death is affected by a variety of factors. They may be biological, physiological, environmental, etc. From the demographic view point, mortality is related to the age and sex of an individual. There is infant mortality, mortality of woman at the time of delivery, mortality of man due to cancer of the prostate, etc. In its Manual on the International Statistical Classification of Causes of Death, the World Health Organisation (WHO) places them under the following five categories:

1. Infectious, parasitic and respiratory diseases
2. Cancer
3. Diseases of the circulatory system
4. Violence and accidents
5. All other causes such as diseases of the digestive system:

With the exception of category 4 when deaths occur due to violence and accidents, deaths in the remaining categories are being reduced with the advancement of medical science in both developed and developing countries. In the past, the mortality rate was high because of food shortages and famines, spread of epidemics, in sanitary conditions, and long and recurrent wars. After the Second World War, the mortality rates have declined so much in 'developed countries' along with birth rates that the problem of extremely small growth rate of population has arisen in a number of countries like France, Germany, Japan, etc. This has been due to rapid advancement in medical sciences in controlling all types of diseases through life saving drugs and surgery. Other factors responsible for low mortality rates in developed countries have been cleanliness of person and home, hygienic surroundings, pollution control, social security measures, balanced food, health consciousness, etc.

Migration (Mobility)

Migration is the movement of people between regions or countries. It is the process of changing one's place of residence and permanently living in a region or country. According to the Demographic Dictionary of United Nations, "Migration is such an event in which people move from one geographical area to another geographical area. When people leaving their place of residence go to live permanently in another area then this is called migration." Migration may be permanent or temporary with the intention of returning to the place of origin in future.

Factors Effecting Migrations

No human being will like to leave his native place, his family relations and his near and dear ones unless there are compulsions so that migrations become inevitable. Yet, migrations are common throughout the world, as the people move from one country to another for certain reasons, with the difference that the rate of migrations varies between the countries. There are both 'pull', as well as 'Push' factors which cause migrations. Pull factors include better education, health and leisure etc. Whereas push factors include loss of job accommodation or of a kin etc. The main factors which effect migrations are:

(1) Economic Factors: The most important factor that influences and effects migration is the economic opportunities. It has been seen that Gajjars and Bakharwals often come to plains in search of livelihood. People move from East to West to earn money for them as well as for their families. It is because that West is economically sound, due to industrialization and needs man power both skilled and unskilled.

(2) Geographical Factors: Geography of an area influences and effects the migration of the people. The people migrate to places where there is invigorating climate or where minerals are found in abundance. Similarly people desert those areas where floods, fire or earthquakes are quite frequent. The people generally wish to settle or migrate to places where topography is ideal, with pleasant climate and ample water resources for both drinking, irrigation and industry.

(3) Social Factor: In areas where social barriers are too hard and rigid and do not allow proper development of an individual people generally leave their place of origin in order to avoid, the society. The people also migrate to shun away from family feuds and disputed family life or to end their unhappy married life.

(4) Political Factors: Politics of a state plays a big role in migrations. People who suffer due to political compulsions in their country migrate and seek asylum in other countries. Similarly, government policy of discriminations against a particular community can result in the migration of the said community.

(5) Demographic Factors: Demographic factors also favour migrations. The people living in high density regions often wish to migrate to areas where the ratio of density is very low. Similarly, the people wish to migrate to areas where people of their standard and status live. In countries where death rate is high, obviously the male population is tempted to migrate as there are more chances of employment to better the economic standards.

Causes of High Fertility Ratio

The rate of fertility in the developed nations of Europe and America remains low, but the rate of fertility is high in both underdeveloped and developing countries. The population problem of India is one of rapid population growth or population explosion. This is due to high birth rate and low declining death rate. During 1901-1951, the population grew by 12.3 crore, while during the next 50 years from 1951-2001, it increased by 66.6 crore, that is by more than 5 times. The two main causes for this rapid growth of population have been high birth rate and a large decline in death rate which are discussed as under:

1. Hot Climate. India has a hot climate. In such a climate boys and girls get matured for fertility at an early age. The reproductive period of girls begins normally from 11-13 years. Consequently, they have a longer fertility period which has a direct relationship with high birth rate.

2. Universality of Marriage: Marriage is universal in India. It is considered a social and religious obligation for the parents to marry their children. Unmarried persons are looked down by the society and universality of marriage results in greater fertility and increasing population.

3. Child Marriage. The average age of marriage among both males and females is very low in India. Naturally, the number of women in the reproductive age is large.

4. Social Customs and Religious Superstitions. Social customs and religious superstitions are also responsible for high birth rate in India. A woman without a child is looked down by the society. Generally, her husband remarries. Moreover, the Hindus believe that everyone must have at least one son otherwise the parents are supposed to be deprived of certain benefits in the next world. Parents having many daughters want to have a male child. This tendency results in high birth rate.

5. Joint Family System. Joint family system is prevalent particularly in rural areas which is also a major cause of high birth rate. In the joint family system, the burden of a child is not borne by the parents but by the head of the family. So the parents do not think about the increasing responsibilities associated with every new born child and beget more and more children.

6. Rise in Natural Fertility Rate. The fertility rate among young married women has been rising gradually in India. This is due to (1) improvement in nutrition and health of couples; (2) the traditional social and religious checks on fertility have been declining; and (3) the duration of breast feeding to infants by mothers has also been reduced. Naturally a rise in the marital fertility rate results in a high population growth rate.

Primary Occupational Activities of Humans

The various occupations may be broadly divided into three major divisions: primary, secondary and tertiary occupations. Primary occupations are those which produce food products, raw materials, and fuels and minerals from the natural resources. Agriculture, mining, lumbering, grazing of animals, etc., are primary occupations. Secondary occupations are those which involve the processing of the primary products. Manufacturing industries use agricultural, mineral and other products, and process them to produce various articles.

Primary Occupations

(i) Food-gathering: Primitive communities lead a simple life depending on the bounties of nature. They gather their requirements of food from the plants in the form of fruits, nuts, roots and leaves. Very often primitive people have to migrate from place to place in search of these products. Hunting and fishing provide animal products to supplement the plant products collected by them. They use simple implements such as spears, bows and arrows for hunting.

(ii) Animal Husbandry: The domestication of animals was one of the steps in the development of civilization. Man learnt the use of animal products such as milk, meat, hides, skins and wool to satisfy his essential needs. A variety of domestic animals are reared by people living in different environments. The primitive communities whose main occupation is the herding of animals are called nomads as they do not lead a settled life at one place. They migrate with their flocks of animals in search of pastures and water supply. Each community lives in a well-defined territory and the people are aware of the seasonal changes in pastures and water supply within the territory. In mountain regions, the herders move to higher elevations to graze the animals in summer, and descend to the valleys during winter. Such seasonal migration of people with their animals is called trans-humane.

(iii) Mining: Mining is an important activity in those regions where valuable minerals occur in large quantities under favorable conditions for their exploitation. Mining is an arduous task especially when mineral ores occur at great depths. Miners live in a colony near the mining site. When the ore gets exhausted or when it becomes uneconomical to mine the ore, the miners leave the site and the settlement becomes deserted. The mining of a mineral ore depends on several factors, such as the quality of the ore, the geological structure and the depth of mining, the accessibility of the mine and the cost of mining.

Secondary and Tertiary Activities

The secondary occupations are those which involve the processing of products obtained from the primary occupations. For example, the manufacture of sugar from sugarcane is a secondary occupation. While mining of coal and iron ore is a primary occupation, the manufacture of iron and steel is a secondary occupation. Thus the occupations provided by manufacturing industries belong to this category. In the developed countries of the world, such as the United States, the United Kingdom and Japan, industries are developed on a large scale and the secondary occupations provide employment to more persons than the primary occupations.

The range of secondary occupations available in a country and the number of persons employed depend on the extent of industrial development. The development of industries depends on the availability of raw materials, power, labour, capital and market for the finished product.

Raw materials for manufacturing industries may be derived either from agriculture or from mining. The industries which are based on bulky or perishable raw- materials, are located near the source of raw material.

Power is needed for processing raw materials. Usually, the cost of power is only a minor part of the total cost and in such cases, power may be transmitted to the industrial centers. The industries which consume large quantities of power, such as chemical and aluminum industries, are located near the source of power.

Labor is not an important factor in industrial location except when highly skilled labor is needed. Ordinarily, labor will migrate to the industrial centre and laborers could be trained in course of time. The diamond-cutting industry in Netherlands and the watch-making industry in Switzerland are examples of industries located according to the availability of skilled labor. These industries are now getting dispersed owing to the dissemination of the know-how.

Capital is needed for establishing manufacturing industries. Capital is easily transferable from one region to another or from one country to another or borrowed from international agencies. Market is not an important factor as industrial products can be sent to distant markets owing to the developments in transport. The distance up to which a product could be marketed is related to the cost of transporting the product.

Manufacturing industries are usually classified into large-scale, small-scale and cottage industries, depending on the number of persons employed, the quantity of mechanical power used and the value of products manufactured. Large-scale industries have been adopting the assembly-line technique for mass production. The raw materials are assembled at different points on the line of assembly. Each laborer is assigned a particular task and the finished product rolls out at the end of the assembly line.

The development of manufacturing industries has provided a wide range of secondary occupations to the people. Industrialization has also led to large-scale use of machines and mechanical energy for agriculture, mining, fishing and other primary occupations. The percentage of persons employed in primary occupations declines rapidly with the development of industries.

Tertiary Occupations

The rapid growth of secondary occupations and urbanization has led to the growth of tertiary occupations. Tertiary occupations include a wide range of personal and professional services provided to the community. In the developed countries the large-scale use of machines has reduced the number of persons employed in primary and secondary occupations and more people are employed in tertiary occupations. Tertiary occupations have developed more in urban centers than in rural areas. Rural areas have a smaller range of tertiary occupations and the total number of people employed in them is small. Such occupations as are related to education, health, trade, transport, banking, communication and administration belong to the tertiary group.

(a) Trade: Exchange of goods and services among different places is known as trade. Trade can be divided into two, National and International Trade. International trade is a very old tradition between different countries. Trade was being carried on between China and South-West Asia through land route in central Asia. This route was known as 'silk-route'. India had trade links with west Asia, Africa and South-East Asia in ancient days. In today's complex economic system, even the most advanced countries are not self-sufficient in all spheres of economy. Every Country produces

some commodities over and above its requirements and at the same time she is deficit in some other commodities. Thus every country exports its surplus and meets its requirements of deficit commodities by importing them. Hence, international trade is beneficial to both, exporting and importing countries. The economic well-being of country depends to a great extent on its international trade. It is the barometer of the Economic development of a country.

(b) Transport: The means of transport are used for carrying passengers and materials from one place to the other. Man has been acting as mode of transportation since early days. He started using animals for transportation about 3000 years ago. The means of transportation assumed much significance after the invention of machines in the beginning of 19th century. Nowadays, buses, trucks, trains, ships tankers, airplanes etc. are used for transportation all over the world. Geographically, three types of transportation are available in today's world.

(i) Land Transport: Highways and railways are two important modes of land transport. Ropeways cableways and pipelines are other examples of land transportation.

(ii) Water Transport: Water transport is one of the oldest modes of transport. Man has been navigating in oceans, rivers and lakes since ancient times. This is the cheapest mode of transportation and is specially useful to transport heavy cargo.

(iii) Air Transport: Modern age is known as the 'Air-Age'. The air transport has developed in the early twentieth century. World wars accelerated the pace of development of air transport. There has been a phenomenal growth of air transport during the last fifty years. Today, even supersonic planes are flying in the air. Almost all parts of the world are served by air transport, western Europe, Eastern United States of America and South-East Asia have a very dense network of air routes.

(c) Communications: The means of communication are used to send messages and ideas from one place to another. Post and telegraph, radio, telephone, television and satellites are important modes of communication in the modern world. Till mid nineteenth century communication was mainly done by man himself using animals. Development of telegraph by Samuel Morse in 1844 revolutionized the communication. Printing press strengthened communication through newspapers and magazines. Invention of telephone by Graham Bell and radio by Marconi further added to the process of communication. The latest advancement in the field of communication is television.

Role of human's in degrading the quality of environment

Our day-to-day life activities effect the environment in following ways:

(1) The increasing concentrations of carbon dioxide in the atmosphere have caused a warming trend leading to climate change. The carbon dioxide molecules the property to absorb the heat radiated by the earth which is useful in keeping our earth warm. Thus the increase of carbon dioxide in the air may cause rise in atmospheric temperature, leading to melting of polar ice caps, this would in turn raise the sea level. This phenomenon is called as the greenhouse effect. The Co₂ is considered the most dominant factor responsible for the greenhouse effect and the other

greenhouse gases are methane, water vapor, ozone and CFC. If the concentration of these gases would increase, there would be rise in temperature worldwide. Global warming results in the melting of polar ice caps. This in turn results in the rise in the level of ocean waters.

(2) It has been found that the chemical Chlorofluorocarbon (CFC) is one of the main destroyers of the ozone layer. The chlorofluorocarbons are the gases or liquids made up of chlorine, fluorine, and carbon. These are mainly used in refrigerators and in air conditioners. The chlorine atom in CFC disturbs the distribution of ozone. It is estimated that one CFC molecule can destroy 1, 00,000 molecules of ozone. The ozone depletion causes skin cancer, eye and immune system sickness in human beings.

(3) Extensive usage of several pesticides and other chemicals to protect our crops from diseases and pests has resulted in the entry of these harmful chemicals into our bodies through the food chain. These chemicals are either washed down into the soil or into the water bodies. From the soil, these are absorbed by the plants along with water and minerals, and from the water bodies these are taken up by aquatic plants and animals. This is one of the ways in which they enter the food chain. As these chemicals are not degradable, they get accumulated progressively at each trophic level. As human beings occupy the top level in any food chain, the maximum concentration of these chemicals gets accumulated in our bodies. This phenomenon is known as biological magnification.