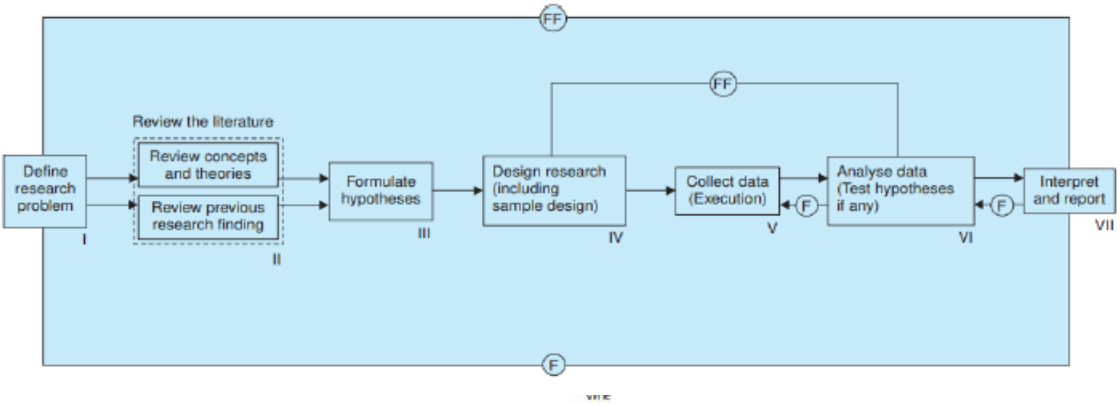
1.**Briefly describe the different steps involved in a research process.**

Research Process

Research process consists of series of actions or steps necessary to effectively carry out research and the desired sequencing of these steps. The chart shown in Figure below.

F- feed back

FF Feed forward



Various steps in research process:

- formulating the research problem;
- extensive literature survey;
- developing the hypothesis;
- preparing the research design;
- determining sample design;
- collecting the data;
- execution of the project;
- analysis of data;
- hypothesis testing;
- generalisations and interpretation;
- preparation of the report or presentation of the results,

2. **What is Research And What is the meaning of Research according to Clifford Woody**

- Careful or diligent search
- Studious inquiry or examination; especially investigation or experimentation aimed at the discovery and interpretation of facts, revision of accepted theories or laws in the light of new facts, or practical application of such new or revised theories or laws.

• The collecting of information about a particular subject Meaning of Research

Meaning of Research

According to Clifford Woody Research means

- **Defining and redefining problems, formulating hypotheses/objectives;**
- **Collecting, organizing, and evaluating data**
- **Making deductions and reaching conclusions**
- **Testing the conclusions to determine whether they fit the formulating hypothesis/objectives.**

3. **What do you mean by research? Explain its significance in modern times.**

Defining and redefining problems, formulating hypotheses/objectives.

• Collecting, organizing, and evaluating data

• Making deductions and reaching conclusions

• Testing the conclusions to determine whether they fit the formulating hypothesis/objectives.

"All progress is born of inquiry. Doubt is often better than overconfidence, for it leads to inquiry, and inquiry leads to invention"- Hudson Maxim.

- For educationists, in studying various educational problems and in seeking solutions to the various educational problems.
- Fop social scientist, in studying social relationships and I seeking answers to the various social problems.
- Provides the basis nearly for all government policies and our economic system.
- For solving various operational and planning problems of business and industries.
- It inculcates scientific and inductive thinking.
- It promotes the development of logical habits of thinking and organization.
- To understand the new development in one's field in better way.

4. **Distinguish between Research methods and Research methodology.**

Research methods vs Methodology

Research method: It may be understood as all those methods/techniques that are used for the conduction of research.

Research methods or techniques, thus, refer to the methods the researchers use in performing research operations.

Research Methodology: It is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically. In it we study the various steps that are generally adopted by a researcher in studying his research problem along with the logic behind them.

Methods	Methodology
The objective of methods is to find solution to the research problem.	The objective of methodology is to determine appropriateness of the methods applied with a view to ascertain solution.
Methods are just behavior or tools used to select a research technique.	Methodology is analysis of all the methods and procedures of the investigation.
Methods are applied during the later stage of the research study.	Methodologies are applied during the initial stage of the research process.
It comprises different investigation techniques of the study.	It is a systematic strategy to find solution to the research problem.
Methods encompasses of carrying out experiments, conducting surveys, tests, etc.	Methodology encompasses several techniques used while conducting these experiments, surveys, tests, etc.

5. Describe the different types of research

TYPES OF RESEARCH

1. Descriptive vs. Analytical

Descriptive research (Ex post facto research): includes surveys and enquiries of different kinds. Researcher has no control over the variables; he can only report what has happened or what is happening

Analytical research: the researcher has to use facts or information already available, and analyze these to make a critical evaluation

2. Applied vs. Fundamental:

Applied research aims at finding a solution for an immediate problem facing a society or an industrial/business organization.

Fundamental research is mainly concerned with generalisations and with the formulation of a theory. "Gathering knowledge for knowledge's sake, eg: studies, concerning human behavior, Mathematics

3. Quantitative vs. Qualitative:

Quantitative research is based on the measurement of quantity or amount. eg: measuring the performance of a process

Qualitative research is concerned with qualitative phenomenon of relating to or involving quality or kind. eg: investigating the reasons for human behavior

4. Conceptual vs. Empirical:

Conceptual research is that related to some abstract idea(s) or theory. It is generally used by philosophers and thinkers to develop new concepts or to reinterpret existing ones.

Empirical research relies on experience or observation alone; it is data-based research, coming up with conclusions which can be verified by observation or experiment.

In Empirical a research, the researcher must first provide himself with a working hypothesis or guess of the probable results. He then works to get enough facts (data) to prove or disprove his hypothesis. He then sets up experimental designs to bring forth the desired information.

5. Other Types of Research:

- **One-time research:** the research is confined to a single time-period
- **Longitudinal research:** the research is carried on over several time-periods
- Research can be **field-setting research** or **laboratory research** or **simulation research**, depending upon the environment in which it is to be carried out.
- **Clinical or diagnostic research:** follow case-study methods or in-depth approaches to reach the basic causal relations
- **Exploratory research:** development of hypotheses rather than their testing
- **Formalized research**: development of hypotheses and testing it.
- **Historical research**: utilizes historical sources like documents, remains, etc. to study events or ideas or philosophy of persons of the past
- **Conclusion-oriented**: a researcher is free to pick up a problem, redesign the enquiry as he proceeds and is prepared to conceptualize as he wishes
- **Decision-oriented research**: is always based on the needs of a decision maker and the researcher is not free to change research according to his own inclination. eg: Operations research

6. Discuss the objectives of research

Objective of Research:

Each research study has its own specific purpose, we may think of research objectives as falling into a number of following broad groupings:

1. **To gain familiarity with a phenomenon or to achieve new insights into it (studies with this object in view are termed as exploratory or formulative research studies)**

3. To determine the frequency with which something occurs or with which it is associated with something else (studies with this object in view are known as diagnostic research studies)

4. To test a hypothesis of a causal relationship between variables (such studies are known as hypothesis-testing research studies).

or

1. **Exploratory or formulative research:** To gain familiarity with a phenomenon or to achieve new insights into it
2. **Descriptive research:** To accurately specify the characteristics of a particular situation
3. **Diagnostic research:** To determine the frequency with which something occurs or with which it is associated
4. **hypothesis-testing research:** To test a hypothesis of a causal relationship between variables

7. Write short notes on:

- **Design of the research project**

- **Motivation in research**

The possible motives for doing research may be

1. Desire to get a research degree along with its consequential benefits;
2. Desire to face the challenge in solving the unsolved problems
3. Desire to get intellectual joy of doing some creative work;
4. Desire to be of service to society;
5. Desire to get respectability.

- **Objectives of research**

Same as 6

- **Research and scientific method.**

Research and Scientific Method

Research is an inquiry into the nature of, the reasons for, and the consequences of any particular set of circumstances researcher is interested in the repeatability of the results and in their extension to more complicated and general situations

Scientific Method The ideal of science is to achieve a systematic interrelation of facts by experimentation, observation, logical arguments from accepted postulates and a combination of these three in varying proportions.

The scientific method is, thus, based on certain basic postulates:

1. It relies on empirical evidence;
2. It utilizes relevant concepts;
3. It is committed to only objective considerations;
4. It presupposes ethical neutrality, i.e., it aims at nothing but making only adequate and correct statements about population objects;
5. It results into probabilistic predictions;
6. Its methodology is made known to all concerned for critical scrutiny is for use in testing the conclusions through replication;
7. It aims at formulating most general axioms or what can be termed as scientific theories.

6. Describe fully the techniques of defining a research problem.

Technique Involved In Defining A Problem

The techniques involved are:

- Statement of the problem in a general way
- Understanding the nature of the problem
- Surveying the available literature
- Developing ideas through discussions
- Rephrasing the research problem into a working proposition.

TECHNIQUE INVOLVED IN DEFINING A PROBLEM

The technique for definition of research problem:

1. Statement of the problem in a general way: First of all the problem should be stated in a broad general way, keeping in view either some practical concern or some scientific or intellectual interest. For this purpose, the researcher must **conduct pilot survey**.

Then the researcher **himself or with guides help can state the problem**, Often, the guide puts forth the problem in general terms, and it is then up to the researcher to **narrow it down and phrase the problem in operational terms**.

Feasibility of a particular solution has to be considered and the same should be stated in the problem

2. Understanding the nature of the problem: discuss it with those who first raised find out how the problem originally came about and with what objectives in view

Keep in view **the environment** within which the problem is to be studied and understood

3. Surveying the available literature: All available literature concerning the problem at hand must necessarily be surveyed and examined before a definition of the research problem

Knowing what data are available often **serves to narrow the problem** and choose technique that might be used

Surveying help a researcher to know if there are certain gaps and inconsistency in the theories; understand the type of difficulties that may be encountered; possible analytical shortcomings also show new lines of approach to solve the present problem

4. Developing the ideas through discussions: a researcher must discuss his problem with his colleagues and others who have enough experience in the same area or in working on similar problems called experience survey

Discussion help Researcher to sharpen his focus of attention on specific aspects within the field, provide general approach; techniques that might be used; possible solutions, etc.

5. Rephrasing the research problem: Finally, the researcher must rephrase the research problem into a working proposition

the researcher puts the research problem in as specific terms as possible so that it may become operationally viable and may help in the development of working hypotheses

Following points must also be observed while defining a research problem

1. **Technical terms** and words or phrases, with special meanings used should be clearly defined
2. **Basic assumptions** or postulates should be clearly stated
3. The value of the investigation (i.e., the **criteria for the selection** of the problem) should be provided
4. The suitability of the **time-period** and the sources of data available must also be specified
5. The **scope** of the investigation or the limits must be mentioned explicitly

First of all the problem should be stated in a broad general way, keeping in view either some practical concern or some scientific or intellectual interest. For this purpose, the researcher must immerse himself thoroughly in the subject matter concerning which he wishes to pose a problem. In case of social research, it is considered advisable to do some field observation and as such the researcher may undertake some sort of preliminary survey or what is often called pilot survey. Then the researcher can himself state the problem or he can seek the guidance of the guide or the subject expert in accomplishing this task. Often, the guide puts forth the problem in general terms, and it is then up to the researcher to narrow it down and phrase the problem in operational terms. In case there is some directive from an organisational authority, the problem then can be stated accordingly. The problem stated in a broad general way may contain various ambiguities which must be resolved by cool thinking and rethinking over the problem. At the same time the feasibility of a particular solution has to be considered and the same should be kept in view while stating the problem.

7. What is research problem? Define the main issues which should receive the attention of the researcher in formulating the research problem.

WHAT IS A RESEARCH PROBLEM?

A research problem refers to some difficulty which a researcher experiences in the context of either a theoretical or practical situation and wants to obtain a solution for the same.

Selecting Research Problem

- Subject which is overdone shall not be chosen.
- Controversial subject should not become the choice of an average researcher.
- Too narrow or too vague problems should be avoided.
- Subject selected for research should be familiar and feasible.
- Few factors to be considered are importance of the subject, the costs involved, the time factor, the qualifications and the training of a researcher
- Selection of a problem must be preceded by a preliminary study in case of new problems.

• In a research process, the research problem is the first and foremost step.

• It can either be a real-life situation or it may also refer to a set of opportunities.

There are two types of research problems:

1. Problem which relates to states of nature E.g. – Status of working children in any Metropolitan city in 2012

2. Problems that relate to relationships between variables. E.g. – The lack of chemical fertilizer is the main cause of the low production of grain food.

8. How do you define a research problem?

Same as 6th

9. What is the necessity of defining a research problem?

Necessity of defining research problem

- To avoid deviating from the goal, the definition of a problem sets the direction of the study.
- To derive the objective
- Proper methodology and selection of study
- Selection of variables of the study
- Clarity for readers
- Definition helps the researchers to control the subjectivity or biases of the researcher
- Makes study feasible

10. Write short notes on:

(a) Experience survey;

(b) Pilot survey;

(c) Components of a research problem;

Components of Research Problem

- An individual or a group or an organization that has some difficulty or problem
- Some objective to be attained
- Alternative means for attaining the objectives
- Some doubt in the mind of a researcher with regard to the selection of alternatives
- Some environment(s) to which the difficulty pertains

(d) Rephrasing the research problem

5. Rephrasing the research problem: Finally, the researcher must rephrase the research problem into a working proposition
the researcher puts the research problem in as specific terms as possible so that it may become operationally viable and may help in the development of working hypotheses

11.Elaborate on research approaches

Research Approaches

Mainly there are two basic approaches to research, the quantitative approach and the qualitative approach.

Qualitative approach:

- This involves the generation of data in quantitative form which can be subjected to rigorous quantitative analysis in a formal and rigid fashion.
- This approach can be further sub-classified into inferential, experimental and simulation approaches to research.
- The purpose of the inferential approach is to form a database to conclude characteristics or relationships of the population. This usually means survey research where a sample of the population is studied to determine its characteristics, and it is then inferred that the population has the same characteristics.
- Experimental approach is characterized by much greater control over the research environment and in this case some variables are manipulated to observe their effect on other variables.

The simulation approach involves the construction of an artificial environment within which relevant information and data can be generated. This permits observation of the dynamic behavior of a system (or its sub-system) under controlled conditions.

Qualitative approach:

This research approach is concerned with the subjective assessment of attitudes, opinions and behavior. Research in such a situation is a function of researcher's insights and impressions. Such an approach to research generates results either in non-quantitative form or in the form which are not subjected to rigorous quantitative analysis. Generally, the techniques of focus group interviews, projective techniques and depth interviews are used.

for reference

Quantitative approach can be further sub-classified into inferential, experimental and simulation approaches to research.
The inferential approach is a survey where a sample of population is studied (questioned or observed) from which to infer characteristics or relationships of population.
Experimental approach: in this case some variables are manipulated to observe their effect on other variables.
Simulation approach involves the construction of an artificial environment within which relevant information and data can be generated. This permits an observation of the dynamic behavior of a system (or its sub-system) under controlled conditions.
Qualitative approach to research is concerned with subjective assessment of attitudes, opinions and behavior. Research in such a situation is a function of researcher's insights and impressions and generates results in non-quantitative form the techniques of focus group interviews, projective techniques and depth interviews are used.

12. Discuss about Literature Review

What is a Literature Review?

- A literature review is the research and evaluation of the available literature in your chosen topic area. It includes a survey of scholarly sources to provide an overview of the current research and available data and knowledge.
- These sources include books, journal articles, and newspapers, that relate to your research question.
- Moreover, it not only summarizes the sources. But it also analyzes, interprets, and evaluates the relevant theories, methods, points of view, and gaps in the existing literature.
- However, this does not mean that a literature review is based on previous searches only. The writer discusses the research question and its various aspects and discusses the relevant study to support this claim.

Different types of literature reviews

All literature reviews are not the same. There are a variety of possible approaches that you can take. It all depends on the type of research you are pursuing.

Here are the different types of literature reviews:

1. Argumentative review:

It is called an argumentative review when you carefully present literature that only supports or counters a specific argument or premise to establish a viewpoint.

2. Methodological review:

This approach delves into the "how" and the "what" of the research question, you cannot look at the outcome in isolation; you should also review the methodology used.

3. Systematic review:

This form consists of an overview of existing evidence pertinent to a clearly formulated research question, which uses pre-specified and standardized methods to identify and critically appraise relevant research and collect, report, and analyze data from the studies included in the review.

4. Meta-analysis review:

Meta-analysis uses statistical methods to summarize the results of independent studies. By combining information from all relevant studies, meta-analysis can provide more precise estimates of the effects than those derived from the individual studies included within a review.

5. Historical review:

Historical literature reviews focus on examining research throughout a period, often starting with the first time an issue, concept, theory, or phenomenon emerged in the literature, then tracing its evolution within the scholarship of a discipline. The purpose to place research in a historical context to show familiarity with state-of-the-art developments and identify future research's likely directions.

6. Scoping Review:

The Scoping Review is often used at the beginning of an article, dissertation, or research proposal. It is conducted before the research to highlight gaps in the existing body of knowledge and explains why the project should be greenlit.

7. State-of-the-Art Review:

The State-of-the-Art review is conducted periodically, focusing on the most recent research. It describes what is currently known, understood, or agreed upon regarding the research topic and highlights where there are still disagreements.

How to Write the literature review:

There are five key steps to writing a literature review:

1. **Search** for relevant literature
2. **Evaluate** sources
3. **Identify** themes, debates, and gaps
4. **Outline** the structure
5. **Write** your literature review