

Research Aptitude

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* Research Characteristics

- 1) Objectivity : It means research is without bias.
- 2) Reliability : It refers to the context to which an investigation produces consistent results. The more the similarity in the results, the more is the reliability of research, also termed as verifiability.
- 3) Validity : Validity refers to how accurately a method measures what is intended to measure.
- 4) Accuracy : It means how precisely the measured values reflect the real or the original values. It also measures whether the research tools have been selected in the best possible manner.
- 5) Credibility : The extent to which a research account is believable and accurate, it's the use of best source of information and the best procedures.
- 6) Generalizability : The sample is the representative of the whole population, and it should consider the entire population.
- 7) Empirical Research : It is based on real-life experiences, direct experiences or observation.
- 8) Systematic : Research implies that each step must be followed as per the procedure.
- 9) Controlled factors : The controlled factors or variables have to be controlled rigorously.
- 10) Cyclical : Research is a cyclical process because it starts with a problem and ends with a problem.
- 11) Logical : Research implies use of logic and logical reasoning by means of Inductive and deductive reasoning.
- 12) Replicable : It means obtaining consistent results across studies aimed at answering the same scientific question using new data or other methods.

POSITIVISM AND POSTPOSITIVISTIC APPROACH TO RESEARCH:

1) Metaphysics:

- branch of philosophy
- Deals with abstract concepts such as being, knowing, identity, time and space.
- Connected with epistemology.

2) Epistemology:

- Study of knowledge
- Deals with origin, nature, scope and methods to acquire knowledge.
- First used by Frederick Ferrier

Two ways to acquire knowledge -

1) Rationalism → logic and reason as the means of acquiring knowledge.

2) Empiricism → Experience is the ultimate starting point of all our knowledge

* Theory → A theory is a set of systematically related statements, including some law-like generalizations that can be tested empirically.

* Paradigm → a 'way of thinking' about something and how to do it.

* Research Paradigms:

- A paradigm is a model of the functions and interrelationships of a process, a 'way of thinking' about something and how to study it.

Paradigms are grouped into two →

1) Positivist Paradigm:

- 'Positivism' was coined by French Philosopher 'Auguste Comte'.
- In philosophy, positivism mainly adheres to the idea that 'factual' knowledge gained through observation is trustworthy.
- Quantifiable observation
- Positivists adopt 'deductive approach,' concentration is on facts.
- Scientific methods used.
- Positivism relies on experience as a valid source of knowledge.
- Role of researcher is limited to data collection and interpretation.

2) Post-positivism-

[Logical empiricism]

- Post-positivist research accepts concepts to be relevant only if they support action.
- Post-positivist research starts with a theory, collects data, and this either supports or rejects the theory.
- Less strict form of positivism.

* Descriptive Research:

- It describes the nature of a situation as it exists at the time of study.
- Who, what, when, where, how.
- Quantitative Research
- It involves describing the phenomenon, observing and drawing conclusions from it.
- Includes surveys and fact-finding.
- Studying relationships between two or more variables also falls under the scope of descriptive research.

TYPES :

• Various types of descriptive research are as follows:

- 1) Cross-sectional study : One-time study & data collection
- 2) Longitudinal study : conducted over a period of time.
- 3) Survey studies : Collecting data for surveys.
- 4) Correlational : Study the relationships between two variables and their association.
- 5) Ex post facto research : It is conducted after the event / phenomenon has occurred or at the time of its occurrence.
 - Used in social sciences and business organizations.
- 6) Historical Research : Focus on the historical aspect.
- 7) Analytical Research : Researcher uses facts or information already available.
- 8) Explanatory Research : Research aims at explaining how and why between two aspects of a situation.
- 9) Exploratory Research : Done at the beginning of a research, to explore an unfamiliar area, to gain background information, to define terms and problems to be solved.

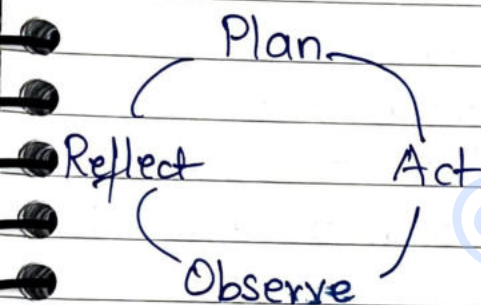
* Experimental Research :

- Designed for establishing causal relationships.
- Follows the basic research process, wherein the problem is stated, variables are identified and the researcher develops hypotheses to test the relationships.
- In this research, an independent variable is manipulated, all other variables are held constant while the effect of the manipulation is observed.

* ACTION RESEARCH

- means 'Learning by doing.'
- The term 'action research' was coined in 1940s by Kurt Lewin.

- He described action research as 'a comparative research on the conditions and effects of various forms of social action and research leading to social action' that uses 'a spiral of steps, each of which is composed of a circle of planning, action and fact-finding about the result of the action.'
- Action Research is cyclic in nature



→ Approaches of Qualitative Research:

- 1) Narrative Research - Exploring the lifestyle of an individual
- 2) Phenomenology - Understanding the essence of the experience
- 3) Grounded theory - Starting from zero.
Developing a theory grounded in data from the field.
- 4) Ethnography - Describing and interpreting a culture-sharing group.
- 5) Case Study - Developing an in-depth description and analytics of a case or multiple of cases.

→ Exploratory Research-

- Study of an unfamiliar problem
- Development of hypothesis rather than its testing
- Takes the form of pilot testing / pilot study
- Qualitative and Flexible in nature

→ Descriptive Study:-
Surveys and fact finding enquiries of different kinds.
Major purpose - Description of the state of affairs.

⇒ Approaches to Research Ethics:

1. Deontological Approach:

• We should identify and use a universal code in making ethical decisions. Morality of an action itself should be based on whether that action itself is right or wrong under a series of rules, rather than based on the consequences of the action. This is an absolutist approach.

2. Ethical Scepticism Approach:

• States that ethical standards are not universal but are relative to one's own particular culture and time. It is based on relativism.

3. Utilitarianism Approach:

• Ethical theory that determines right from wrong by focusing on outcomes.
• If the expected benefits exceed the expected risks, the study is presumed to be ethical.

⇒ RESEARCH PROCESS:

The logical sequencing of steps undertaken in order to find the answers to the research questions are termed as research methodology. It adopts procedures, methods and techniques that are tested for their validity and reliability.

Steps of a Research Process -

- 1) Formulation of Research Problem:
 - Identifying research variables, scales to be used, objectives
 - Literature review and hypothesis formulation.
- 2) Preparing Research Design:
 - Structure and study of the research to be undertaken -
 - Identifying the type of research to be used.
- 3) Developing Data Collection Instrument (Research Instrument):
 - Types of data, methods of data collection & designing research tool.
- 4) Selecting Samples:
 - Determining sample design, types of samples.
- 5) Writing a Research Proposal:
 - Main elements, need & benefits, Scope of research
- 6) Collecting Data:
 - Observations, Interviews, Questionnaire, Surveys.
- 7) Processing and Analyzing Data:
 - Editing & Classification of data, Tabulation, Analysis, Hypothesis testing & Generalizations.
- 8) Writing a Research Report:
 - Title page, Contents, Chapters, Bibliography, Appendices.

* TYPES OF VARIABLES:

1> Independent Variable: (IV)

- Also known as manipulated, experimental or treatment variables.
- They become the cause of another variable.

2> Dependent Variable: (DV)

- Also known as outcome or response variables.
- The DV is the variable that changes as a result of changes made on the independent variable.

3> Intervening Variables:

- Also known as mediator variables.
- eg: Smoking $\rightarrow$ tissue damage $\rightarrow$ Lung cancer
- Establish the link between IV and DV.
 - These are variables through which one variable affects another variable.

4> Extraneous Variable:

- Variables, which are not the independent variable, but could affect the results of the experiment.
- Also known as confounding variables.

* SQ3R : Survey - Question - Read - Recite Review :

SQ3R is a comprehension strategy that helps students think about the text they are reading while they are reading.

* Classification of Research

→ Experimental Research :

- Designed for establishing causal relationships.
- Begins with a question concerning the relationship between two or more variables.

3 Characteristics of an experiment :

1. An independent variable is manipulated.
2. All other variables except the independent variables are held constant.
3. The effect of manipulation of the independent variable on the dependent variable is observed.

Dependent Variable is observed but not manipulated by the experimenter.

* Classification of Research on the Basis of Application

Fundamental Research

[also known as Basic
or Pure research]

→ Main purpose is to add to existing stock of knowledge.

→ New discovery

→ Extensive in nature

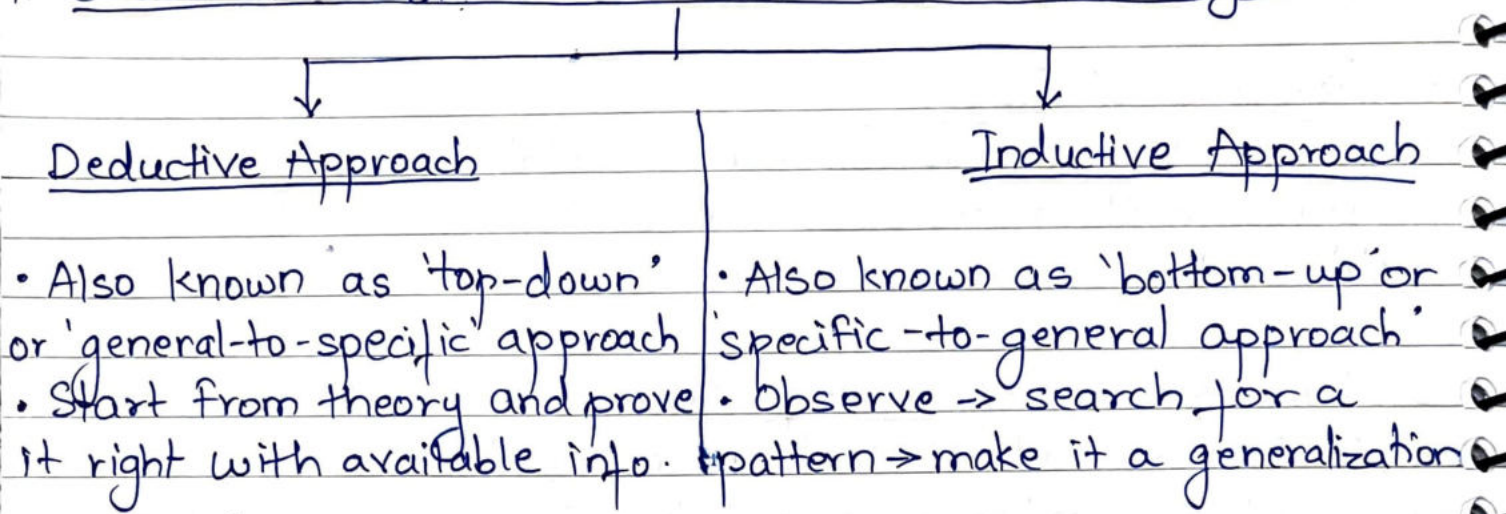
Applied Research

→ Done to solve specific, practical questions facing the society.

→ Practical use in solving the problem

→ Intensive in nature

* Classification of Research on the Basis of Logic



* Classification of Research on the basis of Inquiry mode:

Structured Approach : Quantitative Research

Unstructured Approach : Qualitative research

* Classification of Research on the basis of Concept:

• Conceptual Research:

Used by philosophers and thinkers to develop new concepts or to reinterpret the existing concepts.

• Empirical Research:

• Relies on experience or observation alone, which is a data-based research.

• Researcher formulates a working hypothesis

• Collects data to support hypothesis.

* Classification of Research on the Basis of Process:

• Quantitative Research

• Qualitative Research

Qualitative Research

- Main motive is to develop understanding on human beings/ social sciences to know what people feel & think
- To explore and gain understanding of problems
- Subjective approach
- Bottom-up - 'How & when'
- Inductive Reasoning - Starts from observation → Pattern → tentative hypothesis → theory
- Methods → In-depth interview, focus groups, observation, narrative, phenomenology, Ethnography, case study, content analysis, grounded theory
- Holistic Approach → Random Sampling
- Process-oriented
- Generation of hypothesis
- Descriptive results
- Narrative Reports

→ Imp topic

* Ethnography

- Process of studying and describing a culture
- Ethnographic research is an in-depth form of research where people are observed in their natural environment without any changes.
- It intends to provide an insider's picture of a community under study.

Quantitative Research

- To generate numerical data and hard facts by employing statistical, logical and mathematical techniques.
- To explain & quantify the problem.
- Objective Approach
- Top-down - 'what & when'
- Deductive Reasoning - Theory → hypothesis - make observation → confirm hypothesis
- Methods → Structured interviews, surveys, data collection, statistical records.
- Non-Random Sampling
- Result-oriented
- Testing of hypothesis
- Specific Results
- Statistical Reports.

- In-depth interview : One-on-One interview, open-ended, discovery-oriented method to obtain detailed information about a topic/person.
- Focus-group - Comprises of around 6-10 participants who are usually subject-matter experts who discuss a given topic.
- Phenomenology :
Form of qualitative research in which the researcher attempts to understand how one or more individuals experience a phenomenon.
eg: interviewing people involved (or affected by) in terrorist attacks, asking them to describe their experiences.

* MEASUREMENT SCALES :

1) Nominal Scale :

- Also termed as classificatory scale.
- A variable on a nominal scale may have one, two or more subcategories depending upon the variation.
eg: Gender - Male, Female, Rather not say.

2) Ordinal or Ranking Scale :

- usually ranks the subgroups in certain sequence or order.
eg: Asking for a review.

3) Interval Scale :

- Like ordinal scale but uses a unit of measurement with start & end points.
eg: Celsius scale - 0 to 100°C.

4) Ratio Scale :

- Used to gather quantitative information
- Fixed starting points
- eg: height, weight, money etc.

* Sampling Techniques :

(I) PROBABILITY SAMPLING :

1) Simple Random Sampling :

- Every element has a known and equal chance of being selected.

2) Stratified Sampling :

- Population is divided into different groups-called strata.
- Samples are taken from homogenous groups.
- When sample size is small.

3) Cluster Sampling :

- This is adopted in situations when population size is large and easy to identify.

4) Systematic Sampling :

- Used to choose sample members of a population at regular intervals.
- Requires a starting point and sample size that can be repeated at regular intervals.
- Less time-consuming.

II) Non-PROBABILITY SAMPLING :

- Non-structured sampling, all members of the population do not get an equal chance of being selected.

1) Convenience Sampling :

- Easiest members are selected through which information is collected smoothly.
- eg: collecting data from your friends, family etc.

2) Judgement or purposive sampling :

- Researcher uses his judgement to select the population members.
- eg: Collecting data from people who you know will be aware/interested about that topic.

3) Snowball Sampling :

- Information may be collected from few individuals and they may identify other people for gathering information.
- eg: Asking your friends to pass on the survey to their friends and they asking their friends and so on.

4) Quota Sampling :

- Selection of members happens based on a pre-set standard.
- eg: A researcher might ask info from a sample of 100 females.

5) Accidental Sampling :

- Happens when a researcher comes across a person and they may have info. Research & information that is collected accidentally.
- Also known as grab or opportunity sampling.

* Symposium - formal meetings at which experts deliver short address on a topic, participants form an audience and make presentations.

- * Colloquium - Academic meeting at which experts deliver & address a topic to a well-educated but not specialized audience.
- * Seminar - Formal presentation by one or more experts to a small group of audience.
- Colloquium & Seminars both happen in an academic setting.
- * Workshops - More intense than seminars, involves participants practising skills and getting hands-on experience.

MCQ's + PYQ's

1. Research is a A purposeful, systematic activity.
2. The idea that knowledge comes from experience is Empiricism.
3. Epistemology refers to Acceptable level of knowledge in a field of study.
4. 'Metaphysics' means Exploring the nature of ultimate reality.
5. Meta-analysis is defined as a systematic method of evaluating statistical data based on the results of several independent studies of the same problem.
6. Journals are specifically meant for publishing research work.
7. The result of building up information from pieces of information is known as Synthesis.
8. The result of setting out a reasoned argument in steps is known as an evaluation.
9. The depth of any research can be judged by the objectives of the research.
10. An empiricist believes that knowledge is acquired through our sensory perceptions.
11. The approach which is based on the assumption that social phenomena can be explained by observing

Cause & effect is Positivism.

12. An ontological question is usually about study of things outside ourselves, an external reality.

13. Appropriate sequence used in hypothetico-deductive research paradigm -

- Establishing a research problem
- Hypothesis making
- Hypothesis testing
- Arriving at generalization
- Conclusion

• The hypothetico-deductive model or method is a proposed description of the scientific method.

• Procedure for construction of a scientific theory that will account for results obtained through direct observation and experimentation and that will, through inference, predict future effects that can be verified or disproved by empirical evidence.

14) Key research terms

A. Research Problems

Description

The research question which has to be answered.

B. Research Hypothesis

A tentative solution or answer to a research question.

C. Sample of Study

A subset drawn from a defined set of universe

D. Research Tools

Devices using which data is gathered

15) Stratified Sampling & Cluster Sampling in research imply randomization and equal probability of drawing the units.

(16.) Imp questionScale of MeasurementProperties

A. Nominal	Classification only
B. Ordinal	Classification & Order
C. Interval	Classification, Order and equal units.
D. Ratio	Classification, order, equal units and absolute zero

17. Empirico-inductive paradigm in research focuses on meaning-giving subjective perspective to depict reality. The purpose of research in this paradigm is not to arrive at generalizations but to discover the reality as lived.

In an empirico-inductive paradigm, researcher collects empirical data (empirico) from specific cases to generalize (inductive) its research finding.

Empirical research makes use of quantitative and qualitative data gathering methods which may include surveys, experiments, and methods of observation.

18) Action-Research is intervention based, cyclic in nature and improvement focused.

19) Substantive hypothesis is a conjecture about the relation between two or more variables.

20) A cross break is a numerical tabular presentation of data usually in frequency or percentage form in which variables are cross-partitioned to study relations between them.

21. Sample techniques used in research

Description

- | | |
|---------------------------|---|
| A. Simple Random Sampling | Each unit is given an equal independent chance of being picked up. |
| B. Systematic Sampling | The k -interval is obtained by N/n and the units are drawn using the same, where N is population size and n is desired sample size. |
| C. Dimensional Sampling | The units are identified in terms of various specific features identified before drawing a sample structure. |
| D. Snowball Sampling | First member unit is used to identify the second unit and so on. |

22. Features of the qualitative research paradigm-

- The research is concerned with understanding the social phenomena from the participant perspective.
- It is conducted in actual settings as the direct source of data and the researcher is the key instrument.
- It is concerned with the process rather than simply with outcomes or products.

23. In Ex post facto method manipulation of independent variable and control of extraneous variables are neither possible nor desirable.

24. In Cluster Sampling method units comprising its constituents are groups taken intact rather than individually.

25) Research Concepts

Description

A. Hypothesis

A tentative statement indicating relationship between two or more than two variables.

B. Sample Research

A subset drawn from a larger set to represent it.

C. Research Tool

Device using through which data is collected.

D. Non-parametric tests

It is a statistical test that does not make assumptions about the parameters.

26) Action Research is cyclic in nature so far as it involves Plan-Act-Observe-Reflect cycle.

27) A predatory journal is the one whose publishers publish for a fee with substandard or no peer reviewing. Predatory journals are characterized by false or misleading info, lack of transparency, use of aggressive practices.

28) Information is processed data.

29) Sequence of steps in the scientific method -

- Felt need which is creating the problem
- Identifying the difficulty and problem statement formulation
- Hypothesis making by identifying the variables
- Collection of data using appropriate research tools.
- Data Analysis and Interpretation.

30) The research method which focuses on establishing causal relationships with controls among variables - independent, dependent is called Experimental Method.

31) The scope for creativity and imagination is largest in which step of the Research process?

- Hypothesis making and Hypothesis testing

32) In Experimental Research the independent variable is manipulated to observe and measure its effect on the dependent variable.

33) Various Methods of Research

Description

A. Experimental Method	Studying the effect of manipulating independent variable on dependent variable under appropriate control imposed.
B. Ex-post facto Method	Conducting a probe into causal factors on the basis of evidences manifest.
C. Descriptive Survey Method	A detailed description of the way people believe and act in a society.
D. Ethnographic method	Studies designed to obtain information concerning the current status of phenomena.

34) Features of Aristotelian Syllogism:

Aristotle syllogism consists of three successive assertions: the first two are the premises, and the third is the conclusion.

- It is only deductive and formal
- The major and minor terms stand apart in the premises
- It is verbalistic.

Eg: Premise 1: Every tree is a plant.
Premise 2: Every plant is alive
Conclusion: Every tree is alive.

35) The critical difference between experimental and ex post facto research lies in terms of:

Control and manipulation of independent variable.

36) In Interval scale of measurement, classification, order and equality of units are ensured.

37) Fundamental Research focuses on enhancing the corpus of knowledge in a given field.

38) When the independent Variable is explored rather than manipulated, to observe the effect on dependent variable, it is Ex-post facto method.

39) Scientific methods are used in Empirical research.

40) In Ethnography and phenomenology there is greater flexibility in both methods and process of research.

41) The research form which will be appropriate fit for improving efficacy of formative assessment would be Action Research.

42) In Experimental method, manipulation and control of variables, and randomization of sample are two of

of the basic requirements.

43) <u>Terms used in research</u>	<u>Description</u>
A. A Postulate	It is the statement of the principle assumed, in the absence of direct evidence.
B. A Construct	Though not directly observable, is considered to exist.
C. Variable	It is something which can change either quantitatively & qualitatively.
D. Systematic Error	It causes obtained results to vary in a particular direction.

44) The research form which will be appropriate fit for improving efficacy of formative assessment would be Action Research.

45) <u>Types of Research</u>	<u>Description</u>
a) Fundamental	Adding to corpus of knowledge by formulating theory.
b) Applied Research	Exploring applicability of truths/principles to new situations.
c) Action Research	Intervention based <u>ameliorative</u> moves. (meaning: to make better)
d) Case Study Research	In-depth study with focus on typicalities in Research.

46) The personalized and contextualized references are permissible in Ethnographic Research.

47) Sequence of steps of research using quantitative paradigm:

- Establishing a research problem
- Hypothesis framing
- Hypothesis testing
- Generalization and Conclusion
- Implication of Results

48) In historical method, hypotheses are usually implied rather than being explicit.

<u>Sampling method</u>	<u>Description</u>
A. Stratified Sampling	Every unit has independent and equal chance of being picked up.
B. Cluster Sampling	The units are groups and are chosen intact.
C. Systematic Sampling	The members are selected using the interval obtained by N/n
D. Dimensional Sampling	The units/members are chosen to represent various areas of characteristics so defined.

50) When results obtained in a research study can be extended to a group sample (outside the context of the study) it is called External Validity.

51) In Narrative Research, individual stories to describe the lives of people are explored.

52) In cluster sampling the units comprising the sample are given equal and independent chance.

53) Hypothesis testing is the main concept of Experimental research.

54) Multistage sampling is taking of samples in stages using smaller and smaller sampling units at each stage.
- complex form of cluster sampling.

55) An empirico-inductive paradigm is employed in Ethnographic probe, case study method & narrative method.

A research method that aims at an understanding of individual and social phenomena (through participant observation and interview), and creates theory based on observation and experience.

56) 'Chapter Scheme' of the document has to be formally approved by a research committee in university for Thesis/dissertation.

57) <u>Column I</u>	<u>Column II.</u>
a) Ontology	Realism
b) Epistemology	Positivism
c) Methodology	Ideographic
d) Method	Survey

58) Etymology is the study of the origin of words and the way in which their meanings have changed throughout history.

59) The Non-parametric 'chi-square test' technique will be appropriate for data analysis when the observations are available in the form of frequencies.

60) Action Research : Plan, Act, Observe, Reflect.

61) Research Tools

Measurement Scale

a) Questionnaire & Interview	Nominal Scale of Measurement
b) Intelligence & Aptitude tests	Interval Scale of Measurement
c) Attitude and Value test	Ordinal Scale of measurement
d) Speed & Frequency tests	Ratio Scale of Measurement.

62) Case studies are In-depth examination of a subject and its related conditions.

63) Tertiary source of data is information derived from both primary and secondary sources.

64) A hypothesis is a tentative statement providing an explanation.

65) Position papers are for highlighting of issues and depiction of status.

66) Participant observation is a part of Ethnographic research

67) Critical language testing in a research report is testing language from an ethical point of view, revealing its misuses.

68) Think-aloud procedure is a technique used to investigate learner strategies and performance.

69) Plagiarism in research is copying unscrupulously and making use of it.

70) Thinkers	Contribution / concept
Karl Pepper	Falsification
T.S. Kuhn	Paradigm Shift
Paul Feyerabend	Against the method
Francis Bacon	Inductive method

71) A hypothesis should be conceptually —
simple, clear and specific.

72) The formulation of a research problem can be compared to laying the foundation of a building.

73) Mailed Questionnaire, observation, interview, and collective questionnaire are instances of Primary sources.

74) During research, while recording observations if an observer rates an individual based on the rating given in another aspect of the interaction, it is known as Halo effect.

75) Quantitative research is also called Structured Approach.

76) The easiest attitudinal scale which is a summated rating scale is the Likert Scale.

77) When the researcher does not know the identity of the experimental and placebo groups, the study is Double-blind. This study is used to prevent bias in search results.

78) A pilot study is also called a feasibility study.

- 79) A questionnaire that offers no scope for any respondents own view is called close-ended questionnaire.
- 80) The fish bowl draw is a random sampling method.
- 81) In research, reliability is that quality of a measurement procedure which provides repeatability and accuracy.
- 82) The major characteristic of correlation analysis is to seek out Association among variables.
- 83) The time-frame in which a study explores a situation or problem is called the reference period.
- 84) The conceptual framework in which a research is conducted is called Research Design.
- 85) In Ethnographic Research the focus of concern is on interpreting reality in terms of participants perspective.
- 86) Research design that needs to collect factual information on a continuing basis is classified as Longitudinal Study Design.
- 87) A tentative proposition with unknown validity that specifies a relationship between two or more variables is called research hypothesis.
- 88) In experimental research, the action words 'Control, manipulate and observe' are most relevant.
- 89) Empirical research in social sciences is associated with Positivist Philosophy.

90) <u>Format of presentation</u>	<u>Distinctive features</u>
(a) Thesis/dissertation	Systematic prescribed format
(b) Research Paper	Presentation on a summary of research done.
(c) Workshop	Target oriented group based reflection
(d) Seminar	Reflective deliberations based on specific themes

91) <u>Research Methods</u>	<u>Critical features associated</u>
(a) Experimental method	Establishing cause and effect through control
(b) Ex post facto method	Probing into the causal factors from the observed effects.
(c) Historical method	Establishing the pattern of events which have happened, through primary and secondary sources.
(d) Ethnographic method	Studying shared behaviour patterns.

92) Reasoning from a specific case to a general conclusion is known as Inductive logic.

93) Characteristics of scientific method of research are:
Empiricism, Objectivity, Systematic and Predictive.

94) APA stands for:
American Psychological Association

- 95) Participatory research is also described as Community-based.
- 96) Action Research is carried out to solve immediate problems.
- 97) -1.00 is the strongest correlational value (negative)
 $+1.00$ (positive)
- 98) A research instrument giving inconsistent results has low reliability.
- 99) The i10-index indicates the no. of academic publications an author has written that have at least 10 citation from others.
- 100) Intra-corporal is a case of plagiarism where one student has copied from another in the same submission.
- 101) Autoplagerism is citing one's own work without acknowledgement.
- 102) Creation of spurious data by researcher, their recording and drawing references is Fabricating behaviour.
- 103) Inaccurately representing research by making it in some changes is known as Falsification.
- 104) SPSS: Statistical Package for Social Sciences
- 105) Shodhganga is an Indian digital repository of Indian thesis and dissertations maintained and set up by INFLIBNET.
- 106) MLA style (modern Language Associations) is used in humanities.

107) Placebo bias operates when people strongly want to believe a treatment is successful.

108) Retrospective Study design is meant for a phenomenon that has occurred in the past.
Prospective study design is for future.

109) Research design is a roadmap to carry out the research.

110) Internal Validity is a way to measure if the research is sound.

111) Action Research focuses on ameliorating the prevailing situations.

112) <u>Research Methods</u>	<u>Data Collection Tools</u>
1. Experimental method	Standardized tests
2. Ex post facto method	Typical characteristic tests
3. Descriptive survey	Questionnaires
4. Historical method	Using primary and secondary sources

113) A detailed description of methodology of research is required in Thesis/Dissertation.

114) Dependent Variables are also called the outcome variables.

115) Constant, Dichotomous, Polytomous variables are types of categorical variables.

116) Quantitative approach is top-down

- 117) Grounded theory is when a theory is developed from data that the researcher collects.
- 118) Content analysis is also known as text analysis.
⇒ used to analyze the social life by decoding words, texts etc.
- 119) Narrative research is an approach to review literature.
- 120) Quantitative research is mostly associated with the positivist or post-positivist paradigm.
- 121) In Analytical research the facts or info. already available are used.
- 122) Reflexivity refers to circular relationships between cause and effect.

2021 Solutions

1. When Null hypothesis (H_0) is rejected, the researcher's hypothesis (H_1) is accepted.
Null hypothesis (H_0) is accepted as a chance hypothesis and as such (H_1) being true, the researcher's hypothesis lies in the domain of acceptability.
2. In Experimental studies attempts are made to establish context-free generalizations.
3. Main features of Qualitative Research-
 - Concerned with understanding the phenomena from the participants' perspective.
 - Researcher becomes immersed in the situation, present or past.
 - There is greater flexibility in research process.

4. Methods of Research	Features
(A) Experimental	A variable is manipulated to see its effect on other variable
(B) ExPost facto	The differences are noted and factors causal or otherwise are determined.
(C) Descriptive	Status of facts and conditions are ascertained.
(D) Historical	Primary and secondary sources tapped with emphasis on internal criticism

5. Format and styles of referencing in thesis writing are enforced with a view to effect observance of formal protocols.
Formal protocols ensure avoidance of deviations from norms and procedures of reporting research.

6) Research Steps	Features
(A) Defining a research problem	Carefully chosen terms and concepts with operational descriptions
(B) Hypothesis making	Identifying the variables for setting up a plausible relationship
(C) Drawing a research sample	Representatives of the units chosen
(D) Hypothesis testing	Appropriate statistical techniques for data analysis

7) Data of research take the form of words or pictures with the researcher as the key instrument in Participant observation based studies.

8) Features of 'Hypothetico-deductive research' paradigm-

- Researcher is detached from the study to avoid bias.
- The researcher seeks to establish relationships and explains causes of changes in measured social facts.
- An attempt is made to set up universal context free generalizations.

9) Research Types	Goals
(A) Fundamental Research	Advancing the corpus of knowledge in a field.
(B) Applied Research	Exploring applicability of already established principles.
(C) Action of Research	Amelioration of a given situation
(D) Evaluative Research	Appraising impact of interventions.

10) Null hypothesis (H_0) is helpful in making a claim by the researcher that their findings are not

fortuitous or by chance.

11) In Experimental method, process of hypothesis testing optimally safeguards the role of extraneous variables.

12) Innovations in evaluation system have to amply safeguard the reliability and validity issues of tools used.

13) Scientific Research is systematic, controlled, empirical and involves critical investigation of hypothetical propositions.

14) Steps of Research	Precautions needed
(A) Problem Formulation	Focused issues in terms evidences
(B) Hypothesis Making	Unambiguous labelling of variables being related
(C) Research Design	Ensuring internal validity optimally
(D) Data Analysis	Appropriateness of techniques used.

15) Features of empirico-inductive paradigm of research-

- Research is concerned with the process rather than simply with outcomes or products.
- Researchers are concerned with what are called 'participant perspectives'.

16) In Experimental method an independent variable is manipulated with an intent to observe concomitant changes in dependent variable.

17) Action Research is used primarily to improve a given situation by a practitioner.
Applied Research is directed at exploring applicability of principles already established.

18) Characteristics of a normal distribution curve are:

- It is bell-shaped
- The mean, mode and median coincide at the centre of the distribution.
- The curve is based on an infinite number of observations.

19) Sampling Methods	Procedures
(A) Simple Random Sampling	The units are chosen by giving equal and independent chance to each
(B) Stratified Random Sampling	The units are chosen from defined groups/levels randomly
(C) Cluster Sampling	The units are chosen intact on the basis of their settings
(D) Snowball Sampling	The first member is used as an informant to identify other.

20) A variable measured at the nominal level can be used in higher level statistics if it is converted into another form. The result of the conversion process is called dummy variable

21) Types of Design	Characteristics
A. Solomon Four Group Design	Contains an additional set of control and experimental groups
B. Post-test only Control Group Design	Omits the pre-tested groups altogether
C. One-shot Case Study	Observation of a single-group at one point of time to observe the change
D. Correlational Design	It is a cross-sectional design

22) Actual settings are the direct source of data and the researcher is the key instrument in qualitative research. The purpose underlying qualitative researches is relatively

more directed at depiction of reality rather than arriving at context free generalizations.

23) Research Steps

Characteristics

(A) Research problem definition	Academic and social value of the research question to be weighed.
(B) Formulation of research hypothesis	Defining the variables to be related in unambiguous terms
(C) Design of research	Development of a conceptual framework which is in accord with hypothesis of research
(D) Data Analysis	Appropriateness of techniques and their application

24) Scientific research has the ultimate goal of explaining any phenomenon by laws of generalizations.

25) Sequence of methodological steps in focus group research:

- Define the problem
- Select a sample
- Decide the number of groups needed
- Prepare the mechanics of the study
- Prepare the focus group material

26) Concept

Description

(A) Isomorphism	Similarity of structure
(B) Triangulation	Use of both qualitative and quantitative methods
(C) Principle of Parsimony	Premise that the simplest method is most preferable
(D) Parameter	A property of a population.

27) Social Scientists belonging to the Verstehen tradition do not accept the idea of predicting human behaviour in mechanistic terms.

It is asserted that the main aim of social science research is to promote human understanding.

28) The positivist researchers consider reality as Objective

29) Elements of a cross-sectional design are:

- A sample of cases with inter-related variations
- Data is collected at a single point of time
- Examination of relationships between variables.

30) Advantages of a structured interview are:

- Standardises questions
- Accuracy is possible to a larger extent
- Data processing is easy.

31) Research Components

(A) Concept

(B) Marker variable

(C) Operational definition

(D) Pre-test

Features

An abstract idea

An important empirical counterpart of an idea.

A clear statement of what is to be observed.

A method to establish a point of prior equivalence

32) Correct sequence of steps in the research process as identified by David Nachmias:

- Problem identification
- Formulation of hypothesis
- Research design
- Data Collection
- Data analysis and generalisation.

33) A scientific approach in social science researcher should take into account -

- The factor of co-variation
- Time order
- The possibility of theorisation.

34) Paradigm

Advocate

(A) Positivist

Augustus Comte

(B) Interpretive

Max Weber

(C) Critical

Stuart Hall

(D) Feminist

L. Thompson

35) Spearman's correlation is a non-parametric statistic

36) Statistical - terms

Description

(A) Nominal

Categorization

(B) Ordinal

Ranking

(C) Mean

Expected Value

(D) Variance

Spread in values of data.

37) List I

List II.

A. Arbitrary Approach

Scale is developed on an ad-hoc basis

B. Consensus Approach

Panel of judges evaluate the items chosen for inclusion in the instrument

C. Item Analysis Approach

Number of individual items are developed into a test which is given to a group of respondents

D. Cumulative Scales

Chosen on the basis of their conforming to some ranking of items with ascending and descending discriminating power.

38) Scale construction techniques

- Helps in social science studies while measuring attitudes of the people.

Name of the scale construction approach	Name of the scale developed
1. Arbitrary approach	Arbitrary scales
2. Consensus scale approach	Differential scales (such as Thurstone Differential Scale)
3. Item analysis approach	Summated Scales (such as Likert scale)
4. Cumulative scale approach	Cumulative scales (such as Guttman's Scalogram)
5. Factor Analysis approach	Factor Scales (such as multi-dimensional scaling)

38) Generalization of a finding is possible only in quantitative studies which make use of deductive reasoning

39) Statistical packages:

SPSS, R, SAS, STATA.

40) Ethnography refers to:

A research method where the researcher immerses himself/herself in a social setting for an extended period of time for providing an account of particular culture, society or community.

41) Post-positivism is related to Critical Realism.

42) A question whether the findings by social science researchers are relevant to the everyday life people in natural settings is called Ecological Validity.

43) The notion of turn-taking is employed in Critical discourse analysis.

44) Statistical Test	Application
A. Chi-square	Produces a value that reflects the relationship between expected and observed frequencies.
B. t-test	Is used to determine the significance between group means.
C. ANOVA	A procedure to decompose variation into two or more independent variables
D. Multiple Regression	Analyses the relationship between two or more independent variables and a single dependent variable.

45) The ethical considerations in research include:

- Informed consent
- Avoiding plagiarism
- Proper referencing.

46) A variable not described by a predictor is called Exogenous variable

Variables whose cause is external to the model and is not affected by other variables in the system.

47) A prediction regarding 'relationships involving theoretical constructs' is known as Conceptual hypothesis.

48) Unique case orientation is possible in qualitative research which may later lead to cross-case analysis. Design flexibility is the hallmark of qualitative research as it is open to situational changes.

49) Type of Validity

- (A) Face Validity
- (B) Concurrent Validity

(C) Construct

(D) Predictive

Reflection

Indicates adequacy of instrument
Compares a new test to an already established test

Indicates the extent to which the measurement is used.

The extent to which a score on a scale forecasts scores on same criterion measure.

50) Correct sequence for concept formation -

1. Identifying the topic/problem
2. Enumerating the data relevant to topic/problem
3. Grouping items into categories with common attributes of members.
4. Developing labels for categories.

Concept formation is a type of discovery learning involving psychological processes such as analysis, hypothesis, testing, and generalization. It is a process by which a person learns to sort specific experiences into general rules or classes.

51) Steps of Research

(A) Problem Formulation

(B) Hypothesis making

(C) Selecting a sampling procedure

(D) Data Analysis

Techniques

Raising pivotal question in a field of enquiry.

Setting up relationship among variables of research

Drawing a subset from a larger set.

Tabular and graphical representation of data.

- 52) In the case study method, researcher collects detailed information from a limited number of participants.
- 53) Discourse analysis in historical research is associated with Foucault.
- 54) Experimenter effects are errors introduced during the collection or analysis of experimental data due to the behaviour of the experimenter.
- 55) A proposition is a statement about observable phenomena (concepts) that may be judged true or false.
- 56) When a proposition is formulated for empirical testing, it is called a hypothesis.
- 57) If the research is to be conducted on very young children or inarticulate persons, which ~~on~~ methods will be appropriate in this situation?
- Ans. Observation

Contexts	Examples
A. Context of discovery	Hypothesis generation
B. Inductive reasoning	From particular to generalisation
C. Abductive reasoning	Inference based on some observations
D. Context of Justification	Testing or verifying the hypothesis

- 59) Independent verification of a research effort is known as Replication.

60) Concurrent validity relates a measure to a criterion on which cases (eg. people) are known to differ and that is relevant to the concept in question.

61) List I	List II
A. Grounded Theory	Glasser and Strauss
B. Critical discourse analysis	Foucault
C. Thematic Analysis	Braun and Clarke
D. Ethnographic content analysis	Altheide

62) The values which explain how closely the variables are related to each one of the factors discovered are known as Factor-loadings.

63) List I	List II
A. Structured Interview	Face-to-face
B. Email	Embedded
C. Census	Enumeration of an entire population
D. Probability Sample	Simple Random sample

64) The process which involves the construction of an artificial environment within which relevant information and data can be generated is called as Simulation approach.

65) Sometimes, subjects who know that they are in a control group may work hard to excel against the experimental group. Such a phenomenon is known as Compensatory Rivalry.

66) The characteristics of longitudinal studies are:

- Involves looking at variables over an extended period of time.

- Provides alternative choices
- Allows insight into the time order of variables
- Focus on individual or institutional developments.

67)	List I	List II
A. Empiricism	General approach to the study of reality that suggests that only knowledge gained through experience and the senses is acceptable.	
B. Indicator	A measure that is employed to refer to a concept when no direct measure is available.	
C. Deduction	An approach to the relationship between theory and research in which the latter is conducted with reference to hypotheses and ideas inferred from the former.	
D. Abduction	A form of reasoning with strong ties to induction that grounds social scientific accounts of the social world in the perspectives and meanings of participants in these social worlds.	

68) Analytic induction is a method of -

- Systematic interpretation of events
- Generating hypothesis
- Testing hypothesis

69)	List I - Artifacts	List II - Description
A. History	Occurrence of various events during a study.	
B. Maturation	Biological and psychological characters changing during the course of the study.	
C. Testing	Happens when subjects are given similar pre-tests and post-tests.	
D. Demand characteristics	Subjects' reactions to experimental conditions.	

70) The form of asking mainly closely-ended questions that has been used in connection with the examination of people's normative standards is known as Vignette technique.

71) Scale	Characteristics
A. Arbitrary Scale	Questions are selected on a prior basis
B. Thurstone Scale	Attitude statements are decided by judges
C. Likert scale	Summated ratings
D. Semantic	Consists of seven spaces between two bipolar adjectives.

72) In construct validity the researcher is encouraged to deduce hypotheses from a theory that is relevant to the concept.

73) List I-	List II-
A. Selective Coding	The procedure of selecting the core category, systematically relating it to other categories, validating their relationships, and filing in categories that need further refinement.
B. Initial Coding	Comparing data with data staying close to and remain open to exploring what is happening in data, construct and keep the code short, simple, precise
C. Focused Coding	To discover the most significant or frequent initial code that makes the most analytical sense.

74) Survey research is based on Positivism.

75) Reflexivity is an important characteristic of the researchers involved in qualitative study.

76) If a researcher has to test a hypothesis whether the difference between the means of two groups are significant; they will use Student's t-test.

Student's t-test, is a method of testing hypotheses about the mean of a small sample drawn from a normally distributed population when the population standard deviation is unknown.

77) Stages of Meta Analysis-

- Understand the literature
- Develop inclusion and exclusion criteria of the study
- Locating primary studies

Meta-analysis is a quantitative, formal, epidemiological study design used to systematically assess the results of previous research to derive conclusions about that body of research.

78) Ethnographic method is commonly used in anthropological research.

79) The kind of sample that is simply available to the researcher by virtue of its accessibility, is known as Convenience Sampling.

80) Social Bookmarking software application facilitates building an early accessible bookmark warehouse that becomes searchable.

to members or the public.

81) List I - Research design	List II - Type of Study
A. Sampling Design	Probability sampling design
B. Statistical Design	Pre-planned design for analysis
C. Observational Design	Structured or well thought out instruments for collection of data.
D. Operational design	Advanced decisions about operational procedures.

82) Acc. to communication research findings, some amount of gossip is necessary for Pro-social motivation.

83) List I	List II
A. Positivism	Epistemological position
B. Hypothesis	Tentative answer to the problem
C. Reliability	Consistency of the score
D. Norm	Average score

84) Acc. to Kerlinger (1973), good research problem should be

- Describing the relationship between two or more variables
- In the form of a question
- Amenable to empirical testing

85) A moderating variable is a second independent variable that is included because it is believed to have a significant contingent effect on the original independent variable and dependent variable relationship.

86) An extraneous variable may conceivably affect a given relationship between the independent variable and the dependent variable.

87) When we design the experiment in such a way that the variations caused by extraneous factors can all be combined under the general concept of 'chance', it represents Principle of randomization.

88) Positivism as an epistemological program is characteristic of Natural Sciences.

89) Sequence of empirical steps in the linear model of the research process -

Theory $\rightarrow$ hypotheses $\rightarrow$ sampling $\rightarrow$ collection $\rightarrow$
Interpretation $\rightarrow$ Validation

90) List I	List II.
A. Ex post facto Research	No control over variables, reports only what has happened or what is happening
B. Applied Research	Finding a solution for an immediate problem facing a society or an industrial/business organisation
C. Conceptual Research	Related to some abstract (ideas) or theory
D. Exploratory Research	Development of hypotheses rather than their testing.

91) The term "File drawer problem" is related to Meta Analysis

92) Characteristics of good measurement are:
Reliability, Validity and Practicability

93) The concept 'paradigm' is associated with T.S. Kuhn

94) Chi-square test -

A test of statistical significance, which is typically employed to establish how confident we can be that the

findings displayed in the contingency table can be generalized from a probability sample to a population

95) During research when we avoid speculative and metaphysical approaches and instead concentrate on studying observable facts, it is called Positivism.

96) In research, the combination of different methods, study groups, local and temporal settings, and different theoretical perspectives in dealing with a phenomenon is called Triangulation.

97) Publication bias is also known as the file drawer problem. This term suggests that results not supporting the hypotheses of researchers often go no further than the researchers' file drawers, leading to a bias in published research.

98) Vignettes are short stories about a hypothetical person, traditionally used within research (quantitative or qualitative) on sensitive topics in the developed world.

99) Sequence of steps for the centroid method of factor analysis:

- Compute a matrix of correlation
- Work out the sum of coefficients in each column of the correlation matrix
- Obtain the sum (T) of columns
- Divide the sum of each column by the square root of (T)

The centroid method, developed by L.L. Thurstone, is the method which extracts the largest sum of absolute loading for each factor in turn. It is relatively simple, easily understood and involves simpler computation.

Research Aptitude

1. <u>Key research terms</u>	<u>Description</u>
A. Research Problems	The research question which has to be answered
B. Research hypothesis	A tentative solution or answer to a research question
C. Sample of Study	A subset drawn from a defined set of universe
D. Research Tools	Devices using which data is gathered.

2. Steps in a hypothetico-deductive research. (Sequence)
1. Identifying and defining a research problem.
 2. Hypothesis formulation and developing a design of research. @ugcnet-notes
 3. Defining the population and drawing a sub-set therefrom.
 4. Data Collection using appropriate research tasks followed by data analyses.
 5. Taking a decision on the substantive research hypothesis via testing of the Null hypothesis.

3. Empirico-inductive paradigm in research focuses on meaning-giving subjective perspectives to depict reality. The purpose of research in this paradigm is not to arrive at generalizations but to discover the reality as lived.

4. A predatory journal is the one whose publishers Publish for a fee with substandard or no peer reviewing.

- 5) In a thesis 'Format and styles of referencing' have been inappropriately followed, this is example of Technical lapse on the part of researcher.
- 6) Qualitative research is an umbrella term to refer to various research strategies that share certain characteristics.
The research data collected in qualitative research has been termed soft i.e rich in description of people, places and conversation etc.
- 7) A research hypothesis is a conjectural statement postulating the relationship among variables with a view to advance solution to the problem of study. (Augnet-notes)
- 8) Data must be authentic before it can be of any value in a historical research, yet proof of authenticity does not establish its value, it must also be accurate.
External criticism is, therefore, referred to as lower criticism of the data.
- 9) Features of Aristotelian Syllogism:
1. It is only deductive and formal
 2. The major and minor terms stand apart in the premises.
 3. It is verbalistic.
- 10) The personalistic styles of writing a research report are permissible in Grounded theory research, Participant-observation based research and Case-study research.

- 11) College teacher plants research program in which he/she intend to improve emotional aspect of her classroom climate during teaching - Here, Action Research method will be used as action-research is improvement focused, used for intervention.
- 12) The focus of action research is basically on the amelioration of prevalent practices.
- 13) Using an appropriate parametric test- in a research project, the researcher finds evidence to reject the Null hypothesis. In doing so, Alpha error is occurred. @ugcet-notes
 - * The probability of committing a type I error (rejecting the null hypothesis when it is actually true) is called alpha -
The other name for this is the level of statistical significance, and false-positive
 - * The probability of making a type II error (failing to reject the null hypothesis when it is actually false) is called β (beta), type-II error is also known as (false-negative)
 - * The quantity $(1-\beta)$ is called power.
- 14) Reliability is a necessary but insufficient condition for validity, In respect of evaluation tools, validity is not an all or none concept, but it exists as a continuum.
- 15) From the point of research ethics Problem-formulation and identifying the variables involved is least vulnerable in research.

- 16) Qualitative research paradigm emphasizes participant perspectives and uses an empirico-inductive approach.
- 17) Characteristics of a 'good sample' in research.
- Representative of population characteristics
 - Precision and accuracy in approximating the parameters.
 - Freedom from bias.
- 18) Sociometry is a quantitative method for measuring social relationships. It was developed by psychotherapist Jacob L. Moreno and Helen Hall Jennings in their studies of the relationship between social structures and psychological well-being, and used during Remedial Teaching.
@angcnet-notes
- 19) Chance or accidental errors in research will cause obtained results to depart from the true value as often in one direction or in another. Systematic error causes obtained results in research to vary in a particular direction and is far more likely to catch the researcher by surprise than is chance error.
- 20) A teacher intends to establish the relationship between educational status of parents and the scholastic achievement of pupils. Which method will be used?
Ans. Ex post facto method
- In this method the investigation starts after the fact has occurred without interference from the researcher.

21)

List I
Qualitative Research Perspectives

List II
Central Questions addressed by them

(A) Ethnography

What is the culture of this group of people?

(B) Heuristics

What is the experience of this phenomenon?

(C) Phenomenology

What is the structure and essence of experience of this phenomenon for those people?

(D) Symbolic Interactionism

What common set of symbols and understandings have emerged to give meaning to people's interaction?

22) The population in research means a defined aggregate of something which is the focus of study.

@ugchek-notes

A sample is a sub-aggregate drawn from a defined aggregate to represent it.

23) In Ethnography and phenomenology there is a greater flexibility in both the methods and process of research.

24) In order to bridge the gap between theory and practice both fundamental and applied research formats have to be promoted.

Fundamental research focuses on theory making and applied research is directed at exploring the applicability of theory in varied practical situations.