

PART - A

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(a)

What do you understand by term Research problem?

What are the objectives of Research problem?

A Research problem is a specific issue, difficulty or gap in knowledge that a researcher wants to investigate and solve through systematic study.

Objectives:-

1. To identify the area of study
2. To provide direction to the research work
3. To formulate research questions or hypotheses
4. To determine appropriate Research methodology.

(b) List and explain the characteristics of good research problem?

1. clear and specific
2. Researchable
3. Feasible
4. Significant
5. Ethical.

(c) What are the various means of conducting literature survey in modern times?

1. online research databases - IEEE, SCOPUS, ScienceDirect
2. Digital libraries
3. Academic journals and e-books
4. Conference papers and technical reports.

(d) What are the items in a research report? Explain them in brief?

1. Title Page
2. Abstract
3. Introduction
4. Literature Review
5. Methodology
6. Results and Discussion
7. Conclusion and Recommendations
8. References and Appendices.

(e) Write the difference between descriptive and analytical research.

Descriptive Research

1. Describes characteristics of a phenomenon
2. Answers what, when, where

Analytical Research

1. Analyzes and interprets existing data
2. Answers why and how

3. Uses survey, observation

3. Uses statistical analysis ②

4. Example population survey

4. Example Market trend analysis.

PART-B

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List and elaborate various methods of collecting primary data.

Primary data is data collected directly by the researcher for a specific purpose.

1. Observation method

Researcher observes behavior or events directly.

Types: 1) Structured observation

2) Unstructured observation

3) Participant observation

Adv: 1) Real time data

2) Accurate behavioral information

2. Interview method:

Data conversation between researcher and respondent

Types: 1) Structured interview

2) Unstructured interview

3) Telephone interview

4) Online interview.

Adv: 1) Detailed information

2) Clarification of doubts

3. Questionnaire method.
A set of written questions answered by respondents

Features :- 1) cost-effective
2) large sample coverage

Types - open ended questions
closed ended questions

4. Schedule method :-

Enumerator fills answers based on response

Adv :- 1) High response rate
2) useful for illiterate respondents

5. Experimentation method :-

Researcher studies cause effect - relationships under
controlled conditions. ex - lab exps.

6. Case study method :-

Detailed study of a single individual, organization or
event

Adv :- In depth analysis
useful for complex issues

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Discuss various issues involved in selecting a research
problem - Also elaborate important features of a good
research design.

Issues in selecting Research problem

(3)

1. Availability of data - Data should be accessible
2. Researchers interest → motivation is important
3. Feasibility → Time and financial constraints
4. Social relevance - should solve real problems
5. Ethical Considerations → must follow ethical guidelines

Features of Good Research Design.

- 1) Clear objectives + well defined research goals
- 2) Accuracy → minimize errors and bias
- 3) Flexibility → Allows modification if needed
- 4) Reliability → produces consistent results
- 5) Economical - Efficient use of resources
- 6) Validity → measures what it intends to measure.

(4) Descriptive Effective Literature Studies Approach.

Literature review is the systematic study of existing research on a topic.

Steps:

- 1) Define research topic
- 2) Search relevant literature
- 3) collect journals books and papers
- 4) Evaluate sources.

5. Organize literature

6. Identify research gaps.

Importance :-

→ provides background knowledge

→ Avoids duplication of research

→ Helps research gaps identification

→ Helps develop hypotheses

→ Improves research methodology.

⑤ Discuss the importance of critical literature review and its uses in planning innovation research.

1. understanding existing knowledge

2. Identifying research gaps

3. Avoiding duplication of research

4. Developing research objectives

5. Improving research methodology

6. Building theoretical framework

7. Enhancing credibility of research

Uses in planning Innovation Research.

1. Identifying new opportunities

2. Supporting idea generation

3. understanding technological developments

- 4. Risk detection
- 5. Guiding Research Direction
- 6. Benchmarking Existing solutions
- 7. Supporting funding and project proposals.

⑥ Explain essential features of report writing highlighting the importance and implication of research outcomes.

Essential Features of Report Writing

- 1. Clarity and Simplicity
- 2. Logical organization
- 3. Accuracy and precision
- 4. Objectivity
- 5. Conciseness
- 6. proper documentation
- 7. Use of Tables and figures
- 8. Consistency.

Importance of Research outcomes.

- 1. Knowledge Contribution
- 2. Decision making
- 3. problem solving
- 4. Technological Advancement

Implications of Research outcomes

- 1. Policy Implications
- 2. practical application
- 3. Future Research Direction,
- 4. Social Impact
- 5. Economic Benefits.

⑦ What are the stems in a research report?

Explain them in brief.

1. Preliminary pages.

Title page

Abstract

Acknowledgement

Table of contents

List of Tables and Figures

2. Main body of the report

Introduction

Literature Review

Research methodology

Data Analysis and Interpretation

Discussion

3. End matter

Conclusion

Recommendations

Reference

Appendices

⑧ Explain new development in Intellectual property Rights.

1. Digital Copyright protection

2. Patent Law modernization

3. Biotechnology patents

4. Software patents

5. Global IP Agreements

⑨ Explain the meaning of sampling and non-sampling errors. What are the various sources of these errors? Elaborate in detail. (5)

Sampling Errors:-

Errors Caused by studying a sample instead of the entire population

Sources:-

- Small sample size
- Poor sampling technique
- Sample bias

Non-Sampling Error:

Errors not related to sampling process

Sources:-

1. Measurement error
2. Response Error
3. Processing error
4. Non response error
5. Interviewer Bias
6. Questionnaire Design Error

⑩ Define Intellectual property in research. Explain different types of Intellectual property.

Intellectual property refers to the creations of the human mind such as inventions, literary works, artistic designs, symbols, names and technological innovations.

Types of Intellectual property:-

1. patents.
A patent is a legal right granted to an inventor for a new invention that provides a new product or process.
2. Copy right
3. Trade mark
4. Industrial design
5. Geographical Indication (GI)

Importance:-

1. Encourages Innovation and Creativity.
2. protects the rights of inventors and researchers.
3. promotes technological and economic development.
4. prevents unauthorized use or copying of inventions.
5. Helps in Commercialization of research results.

(ii) Explain the expectations and limitation on exclusive rights of the patent.

Exceptions to patent Rights:-

1. Research and Experimental use
2. private and Non Commercial use
3. Educational use
4. Government use
5. Bolar provision.

Limitations on patent Rights:-

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1. Compulsory licensing
2. Parallel Import
3. patent term limitation
4. Non patentable Inventions
5. Public Interest limitation.