Research Methodology Question Paper with Answers

65+ solved questions: MCQs, short answers, long answers, PhD coursework and NPTEL-pattern MCQs, plus most repeated previous year questions. Prepared by Anushram (www.anushram.com).

Section	Questions	Marks
Part A: Multiple choice questions	30	30 x 1 = 30
Part B: Short answer questions	12	Attempt any 8: 8 x 5 = 40
Part C: Long answer questions	5	Attempt any 2: 2 x 15 = 30
PhD coursework questions	8	Practice
NPTEL-pattern MCQs	10	Practice
Most repeated previous year questions	15	Practice

Time: 3 hours | Maximum marks: 100 (Parts A to C). Tip: attempt each part first, then check the answers.

Part A: Multiple Choice Questions (with answers)

Q1. The main purpose of research is to:

A) Prove a personal belief
B) Generate new knowledge or validate existing knowledge
C) Collect opinions only
D) Avoid uncertainty

Answer: B) Generate new knowledge or validate existing knowledge

Q2. A hypothesis is:

A) A confirmed fact
B) A random guess
C) A testable statement about the relationship between variables
D) A summary of literature

Answer: C) A testable statement about the relationship between variables

Q3. Which of the following is a non-probability sampling method?

A) Simple random sampling
B) Stratified sampling
C) Cluster sampling
D) Convenience sampling

Answer: D) Convenience sampling

Q4. Reliability of a research instrument refers to its:

A) Accuracy
B) Consistency
C) Ethical approval
D) Sample size

Answer: B) Consistency

Q5. Validity of an instrument means:

A) It gives consistent results

B) It measures what it claims to measure

C) It has many variables

D) It has low standard deviation

Answer: B) It measures what it claims to measure

Q6. Interviews and observation are most commonly used in:

A) Qualitative research

B) Experimental physics

C) Time-series forecasting

D) Meta-analysis only

Answer: A) Qualitative research

Q7. The main purpose of a literature review is to:

A) Replace the methodology

B) Identify research gaps and build the study rationale

C) Increase page count

D) Avoid citations

Answer: B) Identify research gaps and build the study rationale

Q8. The chi-square test is generally used to test:

A) Difference between two means

B) Correlation between two continuous variables

C) Association between categorical variables

D) Trend in time-series data

Answer: C) Association between categorical variables

Q9. Plagiarism means:

A) Paraphrasing with citation

B) Using someone else's work or ideas without proper acknowledgement

C) Writing in simple English

D) Using many references

Answer: B) Using someone else's work or ideas without proper acknowledgement

Q10. Informed consent means the participant:

A) Is required to participate

B) Agrees after understanding the purpose, risks and their rights

C) Does not need to be told anything

D) Only signs for online surveys

Answer: B) Agrees after understanding the purpose, risks and their rights

Q11. Which scale of measurement has a true (absolute) zero?

A) Nominal

B) Ordinal

C) Interval

D) Ratio

Answer: D) Ratio

Q12. A five-point Likert scale item is, strictly speaking, measured on which scale?

A) Nominal

B) Ordinal

C) Ratio

D) Absolute

Answer: B) Ordinal

Q13. A Type I error occurs when the researcher:

A) Accepts a false null hypothesis

B) Rejects a true null hypothesis

C) Uses a small sample

D) Uses the wrong scale

Answer: B) Rejects a true null hypothesis

Q14. If p-value = 0.03 at a 5% level of significance, the researcher should:

A) Accept the null hypothesis

B) Reject the null hypothesis

C) Increase the sample size

D) Change the hypothesis

Answer: B) Reject the null hypothesis

Q15. To compare the means of two independent groups, the suitable test is:

A) Chi-square test

B) Independent samples t-test

C) Pearson correlation

D) Regression

Answer: B) Independent samples t-test

Q16. To compare the means of three or more groups, the suitable test is:

A) Paired t-test

B) Chi-square test

C) One-way ANOVA

D) Spearman correlation

Answer: C) One-way ANOVA

Q17. Pearson's correlation coefficient (r) measures:

A) Cause and effect

B) Linear relationship between two continuous variables

C) Difference between group means

D) Frequency of categories

Answer: B) Linear relationship between two continuous variables

Q18. The variable that the researcher manipulates in an experiment is the:

A) Dependent variable

B) Independent variable

C) Extraneous variable

D) Moderating variable

Answer: B) Independent variable

Q19. Reasoning that moves from a general theory to specific observations is:

A) Inductive

B) Deductive

C) Abductive

D) Intuitive

Answer: B) Deductive

Q20. The main purpose of a pilot study is to:

A) Publish early results

B) Test the instrument and feasibility before the main study

C) Replace the main study

D) Increase the sample size

Answer: B) Test the instrument and feasibility before the main study

Q21. Data collected first-hand by the researcher for the study is called:

A) Secondary data

B) Primary data

C) Tertiary data

D) Meta data

Answer: B) Primary data

Q22. A census means collecting data from:

A) A random sample

B) Every unit of the population

C) Only experts

D) Only secondary sources

Answer: B) Every unit of the population

Q23. A cross-sectional study collects data:

A) From the same people repeatedly over years

B) At a single point in time

C) Only from documents

D) Only through experiments

Answer: B) At a single point in time

Q24. A longitudinal study:

A) Studies different people at one time

B) Follows the same subjects over a period of time

C) Uses only secondary data

D) Has no variables

Answer: B) Follows the same subjects over a period of time

Q25. Triangulation in research means:

A) Using three samples

B) Using multiple methods or sources to cross-check findings

C) Drawing three graphs

D) Testing three hypotheses

Answer: B) Using multiple methods or sources to cross-check findings

Q26. Which of the following is NOT a referencing (citation) style?

A) APA

B) MLA

C) Chicago

D) SPSS

Answer: D) SPSS

Q27. The null hypothesis (H0) usually states that:

A) There is a significant difference

B) There is no difference or no relationship

C) The sample is biased

D) The theory is wrong

Answer: B) There is no difference or no relationship

Q28. Which measure of central tendency is most affected by extreme values?

A) Mean

B) Median

C) Mode

D) None of these

Answer: A) Mean

Q29. Snowball sampling is most useful when the population is:

A) Very large and listed

B) Hard to reach or hidden

C) Homogeneous

D) Already in a sampling frame

Answer: B) Hard to reach or hidden

Q30. Action research mainly aims to:

A) Build abstract theory only

B) Solve an immediate practical problem in a specific setting

C) Review literature

D) Replicate old studies

Answer: B) Solve an immediate practical problem in a specific setting

Part B: Short Answer Questions (5 marks each)

Q31. Define research and list any four characteristics of good research.

Answer:

Research is a systematic and objective process of investigating a problem to generate new knowledge or validate existing knowledge.

Characteristics (any four): systematic, empirical (based on evidence), logical, replicable, objective, ethical, and clearly documented.

Q32. Differentiate between population and sample with an example.

Answer:

Population: the entire group the researcher is interested in (e.g., all MBA students of a university).

Sample: a subset selected to represent the population (e.g., 200 of those MBA students).

Samples are used because studying the whole population is usually costly, slow or impractical.

Q33. What is a research design? Mention four types.

Answer:

Research design is the blueprint of a study: how data will be collected, measured and analysed to answer the research question.

Types: exploratory, descriptive, explanatory (causal), experimental, cross-sectional and longitudinal (any four).

Q34. Differentiate between reliability and validity.

Answer:

Reliability: consistency of results; the same tool under the same conditions gives similar results.

Validity: accuracy; the tool measures what it is supposed to measure.

A tool can be reliable but not valid (consistently wrong), but a valid tool must be reliable.

Q35. Explain null hypothesis (H0) and alternative hypothesis (H1) with an example.

Answer:

H0: states that there is no effect, difference or relationship.

H1: states that an effect, difference or relationship exists.

Example: H0: There is no difference in mean scores of online and offline learners. H1: There is a difference.

Q36. Write a short note on research ethics.

Answer:

Key principles: informed consent, voluntary participation, confidentiality, anonymity, no harm to participants, honesty in reporting, avoiding plagiarism and data fabrication, disclosure of conflicts of interest, and the right to withdraw.

Q37. Differentiate between basic (fundamental) and applied research.

Answer:

Basic research aims to expand knowledge and develop theory without immediate practical use (e.g., studying how memory works).

Applied research aims to solve a specific practical problem (e.g., improving a training programme to raise employee productivity).

Q38. What are the features of a good research problem?

Answer:

Clear and specific, researchable with available data, significant (adds value), feasible in time and cost, ethical, and of genuine interest to the researcher.

Q39. Differentiate between primary and secondary data.

Answer:

Primary data: collected first-hand for the current study (surveys, interviews, experiments, observation). Original but costly and time-consuming.

Secondary data: already collected by others (census, reports, journals, databases). Cheap and quick but may not fit the study exactly.

Q40. Differentiate between a questionnaire and an interview schedule.

Answer:

A **questionnaire** is filled in by the respondent; suitable for literate respondents and large samples; cheaper.

An **interview schedule** is filled in by the interviewer who asks the questions; useful for less literate respondents; higher response rate but costlier.

Q41. Differentiate between Type I and Type II errors.

Answer:

Type I error (alpha): rejecting a null hypothesis that is actually true (false positive).

Type II error (beta): failing to reject a null hypothesis that is actually false (false negative).

Reducing alpha increases the chance of beta unless the sample size is increased.

Q42. Explain the four scales of measurement.

Answer:

Nominal: categories without order (gender, blood group).

Ordinal: ordered categories (rank, Likert responses).

Interval: equal intervals, no true zero (temperature in Celsius).

Ratio: equal intervals with a true zero (income, weight, age).

Part C: Long Answer Questions (15 marks each)

Q43. Explain the steps in the research process.

Answer:

1. **Identify the research problem** - choose a clear, researchable issue.
2. **Review the literature** - understand what is known and locate gaps.
3. **Set objectives / research questions / hypotheses.**
4. **Choose the research design** - exploratory, descriptive, experimental, etc.
5. **Plan sampling** - population, sampling method and sample size.
6. **Develop tools** - questionnaire, interview schedule, scales; pilot test them.
7. **Collect data** following ethical standards.
8. **Analyse data** - statistical tests or qualitative coding.
9. **Interpret results** - link findings to objectives and literature.
10. **Write the report** - introduction, method, results, discussion, conclusion, references.

Q44. Explain probability and non-probability sampling methods with examples.

Answer:

Sampling is selecting a subset of a population to represent it.

A) Probability sampling (every unit has a known chance of selection): simple random (lottery method), stratified (divide into strata, then sample each), systematic (every k-th unit), cluster (randomly select whole groups), multi-stage. Example: randomly selecting 100 patient records from a hospital list.

B) Non-probability sampling (chance of selection unknown): convenience, purposive/judgement, quota, snowball. Example: surveying the first 150 shoppers leaving a mall.

Conclusion: probability sampling supports generalisation; non-probability sampling is faster and cheaper but more prone to bias.

Q45. Explain the procedure of hypothesis testing.

Answer:

1. State H0 and H1.

2. Choose the level of significance (usually 5% or 1%).

3. Select the appropriate test (t-test, ANOVA, chi-square, correlation, etc.) based on data type and design.

4. Compute the test statistic from sample data.

5. Find the p-value or critical value.

6. Decide: if p < alpha, reject H0; otherwise fail to reject H0.

7. Interpret the result in the context of the research question, noting possible Type I/II errors.

Q46. Discuss the various methods of data collection.

Answer:

Primary methods: survey/questionnaire, structured and unstructured interviews, focus group discussions, observation (participant and non-participant), experiments, case studies.

Secondary sources: government publications, census, company reports, journals, books, online databases.

Choice depends on: research objectives, nature of data (qualitative or quantitative), budget, time, and respondents' accessibility.

Good practice: pilot-test tools, ensure reliability and validity, and follow ethical guidelines.

Q47. Explain the structure (layout) of a research report.

Answer:

Preliminary pages: title page, declaration, certificate, acknowledgement, abstract, table of contents, list of tables/figures.

Main text: introduction, review of literature, research methodology, data analysis and interpretation, findings and discussion, conclusion, limitations and suggestions.

End matter: references/bibliography, appendices (questionnaire, raw data).

PhD Coursework: Research Methodology Questions with Answers

Q48. What is a research gap? How do you identify it?

Answer:

A research gap is a question or area that existing literature has not answered or has answered inadequately.

Identify it by reviewing recent papers (last 5-7 years), reading 'limitations' and 'future research' sections, comparing contexts (country, sector, population), and checking for contradictory findings or outdated methods.

Q49. What are the components of a good problem statement?

Answer:

Context of the problem, what is currently known, the gap or issue, why it matters (significance), who is affected, and what the study will do about it - usually in 150-300 words.

Q50. Differentiate between a systematic literature review and a narrative review.

Answer:

A **systematic review** follows a pre-defined protocol, explicit search strategy, inclusion/exclusion criteria and quality assessment (often reported with PRISMA). It is reproducible.

A **narrative review** summarises literature selectively based on the author's judgement; it is flexible but more prone to bias.

Q51. Explain the levels of plagiarism under the UGC (Promotion of Academic Integrity and Prevention of Plagiarism) Regulations, 2018.

Answer:

Similarity up to 10% - Level 0 (minor, no penalty).

Above 10% to 40% - Level 1.

Above 40% to 60% - Level 2.

Above 60% - Level 3 (most serious).

Penalties increase with level, for both students and faculty. Core areas of work (results, analysis, conclusions) are expected to be original.

Q52. What is the Research and Publication Ethics (RPE) course?

Answer:

RPE is a 2-credit course made mandatory by UGC for PhD coursework. It covers philosophy and ethics, scientific misconduct (falsification, fabrication, plagiarism), publication ethics, open access publishing, identifying predatory journals, databases and research metrics (impact factor, h-index).

Q53. How do you choose the right statistical test for your data?

Answer:

Compare 2 group means: t-test (independent or paired).

Compare 3+ group means: ANOVA.

Association between two categorical variables: chi-square.

Relationship between two continuous variables: Pearson (or Spearman for ordinal/non-normal data).

Predict one variable from others: regression.

Non-normal data or small samples: non-parametric tests (Mann-Whitney U, Kruskal-Wallis, Wilcoxon).

Q54. What should a PhD synopsis contain?

Answer:

Title, introduction and background, review of literature, research gap, problem statement, objectives, hypotheses (if any), research methodology (design, sample, tools, analysis plan), scope and limitations, expected contribution, tentative chapter plan, timeline, and references.

Q55. What are predatory journals and how do you avoid them?

Answer:

Predatory journals charge publication fees but provide little or no genuine peer review or editorial service.

Warning signs: guaranteed or very fast acceptance, aggressive email invitations, fake or misleading indexing claims, unclear editorial board.

Avoid them by verifying indexing directly on Scopus or Web of Science, checking your university's approved journal list, and asking your supervisor.

NPTEL-Pattern Research Methodology MCQs (with answers)

Q56. Converting an abstract concept into something measurable is called:

A) Conceptualisation

B) Operationalisation

C) Generalisation

D) Triangulation

Answer: B) Operationalisation

Q57. A list of all units from which a sample is drawn is called the:

A) Sampling error

B) Sampling frame

C) Sampling unit

D) Sampling bias

Answer: B) Sampling frame

Q58. A variable that influences both the independent and dependent variable, distorting results, is a:

A) Confounding variable

B) Dependent variable

C) Control group

D) Constant

Answer: A) Confounding variable

Q59. Cronbach's alpha is used to assess:

A) Sample size

B) Internal consistency reliability

C) Normality of data

D) Content validity

Answer: B) Internal consistency reliability

Q60. Expert judgement on whether a test covers all aspects of a construct relates to:

A) Content validity

B) Test-retest reliability

C) Statistical power

D) Random sampling

Answer: A) Content validity

Q61. Random assignment of participants to groups mainly helps to:

A) Increase sample size

B) Reduce selection bias and control confounders

C) Avoid ethics approval

D) Speed up data collection

Answer: B) Reduce selection bias and control confounders

Q62. IMRaD, the common structure of research papers, stands for:

A) Introduction, Methods, Results and Discussion

B) Index, Method, Review and Data

C) Introduction, Model, Review and Design

D) Idea, Method, Report and Data

Answer: A) Introduction, Methods, Results and Discussion

Q63. A researcher's h-index of 10 means:

A) 10 papers in total

B) 10 papers each cited at least 10 times

C) 10 citations in total

D) 10 co-authors

Answer: B) 10 papers each cited at least 10 times

Q64. Journal Impact Factor is based on:

A) Number of authors

B) Average citations to articles the journal published in the previous two years

C) Number of issues per year

D) Acceptance rate

Answer: B) Average citations to articles the journal published in the previous two years

Q65. Which is an example of a falsifiable hypothesis?

A) Some things are unknowable

B) Students who sleep 8 hours score higher than those who sleep 5 hours

C) Research is important

D) Everything happens for a reason

Answer: B) Students who sleep 8 hours score higher than those who sleep 5 hours

Most Repeated Previous Year Questions (for self-practice)

1. Define research. Explain the types and objectives of research.
2. What is a research problem? Explain the steps in formulating a research problem.
3. Explain the significance of literature review in research.
4. What is research design? Explain the features of a good research design.
5. Explain the different methods of sampling. What are sampling and non-sampling errors?
6. What is a hypothesis? Explain its types and the procedure of hypothesis testing.
7. Distinguish between primary and secondary data. Explain the methods of collecting primary data.
8. What is a questionnaire? Explain the essentials of a good questionnaire.
9. Explain the scales of measurement with examples.
10. Explain reliability and validity and their types.
11. Write short notes on: (a) t-test (b) chi-square test (c) ANOVA.
12. Explain the steps in writing a research report.
13. What is plagiarism? How can it be avoided?

14. Explain the role of computers and software (SPSS, Excel, R) in research.
15. Discuss the ethical issues in research.

Frequently Asked Questions

Can I download this research methodology question paper with answers as a PDF?

Yes. Use the download button at the top of this article to get the full paper (65+ questions with answers) as a free PDF. No sign-up needed.

Is this question paper useful for PhD coursework exams?

Yes. Besides the general paper, there is a separate PhD coursework section covering research gaps, synopsis structure, UGC plagiarism levels, Research and Publication Ethics (RPE) and choosing statistical tests.

Where can I find NPTEL Research Methodology previous year question papers?

NPTEL publishes weekly assignments for its courses on the course page at onlinecourses.nptel.ac.in. The NPTEL-pattern MCQs in this article help you practise the same style of conceptual questions.

Which topics repeat most often in research methodology exams?

Research process, research design, sampling, hypothesis testing, reliability and validity, data collection methods, scales of measurement, research ethics and report writing.

How many question papers should I practise before the exam?

Five to seven well-attempted papers are usually enough. Attempt each one under timed conditions, then compare your answers with the model answers.

Are previous year question papers enough to pass?

They show you the pattern and the repeated questions, but pair them with a paper that has model answers so you also learn how to structure your answers.

Is research methodology a scoring subject?

Yes, if you practise structured answers. Most questions follow a definition-explanation-example format, so well-organised answers score well.

Need help with your thesis, synopsis or research paper?
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