

MAHARAJA RANJIT SINGH PUNJAB TECHNICAL UNIVERSITY,
BATHINDA

Ph.D. Entrance Examination of

Research Methodology/Quantitative/Logical Aptitude/Language Skill

No. of Questions: 40 (1.25 mark each)

Max. Marks: 50

- Q1. The values that mark the boundaries of the confidence interval are called as
- Confidence Intervals
 - Confidence limits
 - Levels of Confidence
 - Margin of Error
- Q2. A Type II error is also known as a _____.
- False Positive
 - False Negative
 - Double Negative
 - Positive Negative
- Q3. If a test was generally very easy, except for a few students who had very low scores, then the distribution of scores would be
- Positively Skewed
 - Negatively Skewed
 - Not Skewed at all
 - Normal
- Q4. Which is the process of gathering evidence supporting inferences based on test scores?
- Validation
 - Validity
 - Reliability
 - Prediction
- Q5. In a regression analysis if $SSE = 200$ and $SSR = 300$, then the coefficient of determination is
- 0.6667
 - 0.6000
 - 0.4000
 - 1.5000
- Q6. A Hypothesis which develops while planning the research is
- Null Hypothesis
 - Relational Hypothesis
 - Descriptive Hypothesis
 - Working Hypothesis
- Q7. Survey is a Study
- Fact Finding
 - Descriptive
 - Analytical
 - Systematic
- Q8. Interview with a detailed standardized schedule is called
- Clinical Interview
 - Group Interview
 - Structural Interview
 - Direct Interview

- Q9. Action research means
- Longitudinal Research
 - Applied Research
 - Research initiated to solve an immediate problem
 - Research with Socioeconomic objective

Q10. In the research process, the management question has the following critical activity in sequence.

- Origin, selection, statement, exploration and refinement
- Origin, statement, selection, exploration and refinement
- Origin, exploration, selection, refinement, and statement
- Origin, exploration, refinement, selection and statement

Q11. One of the terms given below is defined as a bundle of meanings or characteristics associated with certain events, objects, conditions, situations, and the like

- Construct
- Definition
- Concept
- Variable

Q12. The purpose of _____ research is to help in the process of developing a clear and precise statement of the research problem rather than in providing a definitive answer.

- Marketing
- Causal
- Exploratory
- Descriptive

Q13. Scale that indicates the relative position of two or more objects or some characteristics is called

- Ranking Scale
- Ordinal Scale
- Arbitrary Scale
- Ratio Scale

Q14. When a group of experts agrees that a measuring instrument measures what it is intended to measure, we say that the instrument has _____ validity.

- Content
- Criterion
- Test-Retest
- Equivalent-Forms

Q15. There are two sets given below. Set - I specifies the types of research, while Set - II indicates their characteristics. Match the two and give your answer by selecting the appropriate code.

Set - I (Research types)	Set - II (Characteristics)
(a) Fundamental research	(i) Finding out the extent of perceived impact of an intervention
(b) Applied research	(ii) Developing an effective explanation through theory building
(c) Action research	(iii) Improving an existing situation through use of interventions
(d) Evaluative research	(iv) Exploring the possibility of a theory for use in various situations
	(v) Enriching technological resources

Code :

- (a) (ii) (iv) (iii) (i)
- (b) (v) (iv) (iii) (ii)
- (c) (i) (ii) (iii) (iv)
- (d) (ii) (iii) (iv) (v)

- Q16. The 'Hawthorne Effect' in research refers to:
- a) Researcher bias in data interpretation
 - b) Subjects altering behavior because they know they are being observed
 - c) Sampling error due to non-response
 - d) Regression to the mean in repeated measures
- Q17. Which research design is MOST appropriate for establishing the incidence of a phenomenon at a specific point in time?
- a) Longitudinal Cohort Study
 - b) Randomized Controlled Trial
 - c) Cross-Sectional Survey
 - d) Case-Control Study
- Q18. The main purpose of a control group in an experiment is to:
- a) Increase the Sample Size
 - b) Provide a baseline against which the experimental group is compared
 - c) Ensure Random Assignment
 - d) Reduce Type II error
- Q19. Power analysis in sampling is used to determine:
- a) Statistical significance of results
 - b) The minimum sample size needed to detect an effect of a given size
 - c) The confidence level of a study
 - d) The margin of error in a survey
- Q20. The Delphi technique is primarily used for:
- a) Collecting ethnographic data
 - b) Achieving structured consensus among a panel of experts
 - c) Random sampling of large populations
 - d) Experimental data collection
- Q21. The 'funnel technique' in questionnaire design means:
- a) Starting with general questions and moving to specific ones
 - b) Starting with specific questions and ending with general ones
 - c) Using only open-ended questions
 - d) Ordering questions by difficulty
- Q22. Heteroscedasticity in regression analysis means:
- a) The residuals are normally distributed
 - b) The variance of residuals is not constant across values of the independent variable
 - c) The independent variables are correlated
 - d) The model has too many predictors
- Q23. In content analysis, 'unit of analysis' refers to:
- a) The total number of documents analyzed
 - b) The time period under study
 - c) The researcher's interpretive framework
 - d) The specific element counted or categorized (word, theme, sentence, etc.)

- Q24. Which of the following ethical principles requires researchers to minimize harm to participants?
- Autonomy
 - Beneficence
 - Non-maleficence
 - Justice
- Q25. Factor analysis is used to;
- Test a hypothesis
 - Identify underlying variables among a set of observed variables
 - Calculate correlation
 - Measure central tendency
- Q26. Triangulation in research means:
- Using three samples
 - Using multiple methods to validate findings
 - Three-stage data collection
 - Third-party verification
- Q27. Which software is widely used for quantitative data analysis?
- NVivo
 - ATLAS.ti
 - SPSS
 - Endnote
- Q28. Chi-square test is used for:
- Continuous variables
 - Categorical/nominal data
 - Time series data
 - Regression analysis
- Q29. The p-value in hypothesis testing represents:
- The probability of obtaining results by chance
 - The sample size
 - The confidence interval
 - The effect size
- Q30. In grounded theory, 'theoretical saturation' occurs when:
- No new categories or themes emerge from additional data
 - The sample size reaches 30
 - All hypotheses are confirmed
 - The literature review is complete
- Q31. Statement: Some teachers are researchers. All researchers are writers.
Conclusions:
- Some teachers are writers.
 - All writers are researchers.
- Only I follows
 - Only II follows
 - Both follow
 - Neither follows

- Q32. Democracy : People :: Monarchy : ?
- Constitution
 - Parliament
 - King
 - Election
- Q33. A person walks 8 km north, turns right and walks 6 km, turns right and walks 8 km, then turns left and walks 2 km. How far is he from the starting point?
- 4 km
 - 6 km
 - 8 km
 - 10 km
- Q34. A sequence: 2, 6, 12, 20, 30, 42, ___ ? What comes next?
- 56
 - 54
 - 60
 - 52
- Q35. A statement: 'If it rains, the match is cancelled. The match was not cancelled.' What can be logically concluded?
- It rained.
 - It did not rain
 - The match was played
 - The match might have been cancelled for another reason
- Q36. In a family, A is the father of B, C is the mother of B, D is the son of A but not of C, and E is the daughter of C. How is D related to E?
- Brother
 - Step-brother
 - Half-brother
 - Cannot be determined
- Q37. Identify the sentence in which 'infer' and 'imply' are used CORRECTLY:
- The professor implied from the data that the hypothesis was wrong.
 - From her tone, I could imply that she was displeased.
 - His silence implied consent; I inferred from his silence that he agreed.
 - She inferred from her speech that the company was profitable.
- Q38. Which sentence contains a DANGLING MODIFIER?
- Having read the report, the committee adjourned the meeting.
 - Walking briskly through the park, the leaves crunched underfoot.
 - Exhausted from the journey, she fell asleep immediately.
 - After finishing dinner, he washed the dishes.
- Q39. 'The senator's remarks were a ___ of his earlier position' — which word best fits, implying a complete contradiction?
- Repudiation
 - Qualification
 - Elaboration
 - Corroboration
- Q40. Select the correctly punctuated sentence:
- Its' a well-known fact that the dog wagged it's tail.
 - It's a well-known fact that the dog wagged its tail.
 - Its a well-known fact that the dog wagged its' tail.
 - It's a well-known fact, that the dog wagged its tail.

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MCQs ANSWER KEY

1	B	11	C	21	A	31	A
2	B	12	C	22	B	32	C
3	B	13	A	23	D	33	C
4	A	14	A	24	C	34	A
5	B	15	A	25	B	35	B
6	D	16	B	26	B	36	C
7	A	17	C	27	C	37	C
8	C	18	B	28	B	38	B
9	C	19	B	29	A	39	A
10	A	20	B	30	A	40	B

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