17759

BRAINWARE UNIVERSITY

Term End Examination 2025-2026
Programme – M.Tech.(CSE)-AIML-2024
Course Name – Research Methodology
Course Code - MTA30115
(Semester III)

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Brainware University
Barasat, Kolkata -700125

Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Identify the correct meaning of research.
a) Systematic investigation b) Random assumption
c) Personal opinion d) Imaginative writing

(ii) Recall the main objective of research.
a) Discover new facts b) Memorize theories
c) Follow instructions d) Entertain audiences

(iii) Analyze how hypothesis formulation impacts research design.
a) Guides data collection b) Confuses process
c) Hinders clarity d) Reduces efficiency

(iv) Explain the role of the null hypothesis in testing.
a) It proves bias b) It validates alternative
c) It assumes no effect d) It avoids sampling

(v) Summarize the relationship between hypothesis and theory.
a) Hypothesis is unrelated b) Hypothesis is derived from theory
c) Hypothesis disproves theory d) Hypothesis avoids logic

(vi) Examine the relationship between investigation questions and data collection tools.
a) Tools generate questions b) Questions guide tool selection
c) Tools interpret results d) No relation

(vii) Employ data gathering method for descriptive study.
a) Document reviews b) Interviews
c) Observation and survey d) Hypothesis testing

(viii) Construct a basic research framework to study consumer habits.
a) Start with product testing b) Define objectives and sample
c) Skip design phase d) Focus on hypothesis testing only

(ix) Assess variable interference in experimental settings.
a) Isolates main effect b) Enhances result

c) Confounds outcome
d) Supports clarity

(x) Explain the role of sampling in research design.

a) Minimizes cost but reduces accuracy
b) Enhances validity through generalization
c) Serves only for exploratory purposes
d) Complicates data analysis

(xi) Illustrate the impact of sampling error.

a) Promotes data duplication
b) Results in misleading generalization
c) Improves statistical strength
d) Strengthens the sampling frame

(xii) Choose a situation best suited for stratified sampling.

a) Random internet survey
b) Diverse population groups
c) Single uniform entity
d) Homogeneous classroom

(xiii) Apply ethics to avoid

a) Data analysis
b) LaTeX usage
c) Plagiarism
d) Referencing

(xiv) Apply keywords from database using

a) Dictionary
b) Thesaurus
c) Scopus
d) Paint

(xv) Evaluate self-plagiarism from submissions to

a) Multiple journals
b) One editor
c) YouTube
d) Gmail

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Define research and state its purpose. (3)
3. Explain the difference between a research question and an investigation question. (3)
4. Analyze the implications of an incorrectly formed hypothesis. (3)
5. Apply the features of a good research design in your own project. (3)
6. Evaluate the limitations of using only qualitative methods in large-scale studies. (3)

OR

Assess the advantages of using stratified sampling in a diverse population. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Describe the characteristics of scientific method in research. (5)
8. Examine the interrelationship between theory, hypothesis, and research design. (5)
9. Explain the significance of formulating a precise research question with suitable examples. (5)
10. Investigate how the concept of variables contributes to experimental research. (5)
11. Analyze the role of research guides and handbooks in framing research methodology. (5)
12. Evaluate the strengths and limitations of multi-stage sampling in field research. (5)

OR

Assess how non-response affects the validity of research outcomes. (5)

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