

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
Ph.D. COURSE WORK EXAMINATION (REMEDIAL) – WINTER 2025

Subject Code: PHD2201

Date: 12/10/2025

Subject Name: Research Methodology_Engineering & Computer Science

Time: 01.30 PM – 04.30 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Define research methodology. Discuss the significance of research in academic and industrial contexts **10**
- (b) Discuss various steps involved in the research process. **10**
- Q.2** (a) How do you determine which sources are relevant to your research question? What are the benefits and limitations of using electronic databases for literature search? **10**
- (b) Describe experimental research design with examples from engineering and social sciences. **10**
- Or**
- (a) Explain the importance of literature review in research. How can plagiarism be avoided while reviewing literature? **10**
- (b) What are the key components of a good research problem? Illustrate with an example. **10**
- Q.3** (a) Explain plagiarism and How do plagiarism-detection tools (Turnitin , iThenticate) contribute to maintaining academic integrity. **05**
- (b) Discuss the ethical issues in research with reference to Ph.D. work. **05**
- Q.4** (a) What are the different methods of data collection in research? Illustrate with examples. **05**
- (b) Discuss different methods of hypothesis testing with examples. **05**
- Q.5** (a) Discuss qualitative data analysis methods such as content analysis and thematic analysis. **05**
- (b) How do you identify a research gap in a given field of study? Give examples from your discipline. **05**
