

GUJARAT TECHNOLOGICAL UNIVERSITY
Ph.D. COURSE WORK EXAMINATION – 2024 (REMEDIAL)

Subject Code: PHD2201**Date: 01/09/2024****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) What is the role of research in advancing knowledge and solving problems? **10**
What are the main aims and objectives of research?
- (b) How do you determine which sources are relevant to your research question? **10**
What are the benefits and limitations of using electronic databases for literature search?
- Q.2** (a) What are some common mistakes to avoid when formulating a research problem? **10**
How do you narrow down a research problem into a specific research question?
- (b) How do you use a literature review to develop a theoretical model or framework? **10**
- OR**
- (a) Calculate the uncertainty in the measurement of volume of a cuboid of the size 5 cm × 6 cm × 8 cm if uncertainty in measurement of each dimension is ± 1mm. **10**
- (b) A thermometer of 0 – 100°C is used to measure a known value of 45°C. Five observations are taken and they are 44°C, 46°C, 48°C, 45°C and 47°C. Calculate accuracy and precision of the thermometer. **10**
- Q.3** (a) How do you communicate your research problem and objectives to others, such as funding agencies or peers? **05**
- (b) What are the potential challenges or obstacles that you may encounter in addressing the gaps in existing research related to your topic of interest? **05**
- Q.4** (a) What is grounded theory and how is it used in qualitative research? **05**
- (b) What is ethnography and how is it used in qualitative research? **05**
- Q.5** (a) What is experimental research and how is it used in quantitative research? **05**
- (b) What are the advantages and disadvantages of qualitative research? **05**
