

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
Ph.D. COURSE WORK EXAMINATION – REMEDIAL – SUMMER 2023

Subject Code: PHD2001

Date: 02/07/2023

Subject Name: Research Methodology (Engineering)

Time: 01:30 PM to 03:00 PM

Total Marks: 35

Instructions:

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

- Q.1 (a)** Explain the appropriate type of research on the basis of the following objectives. **10**
1. On the basis of Nature of Data
 2. On the basis of Nature of Finding
 3. On the basis of Experimental Manipulations
 4. On the basis of Approach Involved
- (b)** What is research problem? Define the main issues which should receive the attention of the researcher in formulating the research problem. Give suitable examples to elucidate your points. **05**
- Q.2 (a)** “Knowing what data are available often serves to narrow down the problem itself as well as the technique that might be used.” Explain the underlying idea in this statement in the context of defining a research problem. **05**
- (b)** Explain the meaning of the following in context of Research design. **05**
- Extraneous variables.
 - Research hypothesis;
- Q.3 (a)** Explain and illustrate the following research designs: **05**
- Two groups of simple randomized designs.
 - Latin square design.
- (b)** “Research design in exploratory studies must be flexible but in descriptive studies, it must minimize bias and maximize reliability.” Discuss. **05**
