



# Siddaganga Institute of Technology, Tumakuru-572 103

(An Autonomous Institution affiliated to VTU, Belagavi, Approved by AICTE, New Delhi)

## First Semester Master of Technology Examinations June 2023

### Research Methodology and IPR

Time: 3 Hours

Max. Marks: 100

**Note :** 1. Revealing of Identity in any form in the answer book will be treated as malpractice.  
 2. Answer any five questions choosing one full question from each unit.

#### Unit - I

- |  |    |   |   |     |
|--|----|---|---|-----|
| 1 a) What are research objectives? Also, define the term research. | 10 | 2 | 1 | 1,2 |
| b) Explain types of research?                                      | 10 | 2 | 1 | 1,2 |

#### OR

- |  |    |   |   |     |
|--|----|---|---|-----|
| 2 a) What are the criteria for good research? Also, differentiate between method and methodology.  | 10 | 2 | 1 | 1,2 |
| b) What are the typical ethical conduct in research? Please describe informed consent in research. | 10 | 2 | 1 | 1,2 |

#### Unit - II

- |   |    |   |   |     |
|---|----|---|---|-----|
| 3 a) List types of literature sources.  | 10 | 2 | 2 | 1,2 |
| b) What are problem solving steps? Draw typical root cause analyzing diagram. | 10 | 2 | 2 | 1,2 |

#### OR

- |  |    |   |   |     |
|--|----|---|---|-----|
| 4 a) Explain necessity of defining the problem and give three examples of research problems in your subject area.              | 10 | 2 | 2 | 1,2 |
| b) A road is recently made but within week it is showing multiple cracks, find the root cause of cracks appearing in the road. | 10 | 2 | 2 | 1,2 |

#### Unit - III

- |  |    |   |   |     |
|--|----|---|---|-----|
| 5 a) Explain the meaning and importance of research design.          | 10 | 2 | 3 | 1,2 |
| b) What are the steps in sample design? Write each steps in details. | 10 | 2 | 3 | 1,2 |

#### OR

- |   |    |   |   |     |
|---|----|---|---|-----|
| 6 a) Write down 10 key questions which help us to make good decisions during research design. | 10 | 2 | 3 | 1,2 |
| b) Explain key point of good sample design.   | 10 | 2 | 3 | 1,2 |

#### Unit - IV

- |  |    |   |   |     |
|--|----|---|---|-----|
| 7 a) Explain most widely classification of measurement scales. | 10 | 2 | 4 | 1,2 |
| b) Describe fully the research report writing steps.           | 10 | 2 | 4 | 1,2 |

#### OR

- |  |    |   |   |     |
|--|----|---|---|-----|
| 8 a) What are the sources of error in measurement? Also, explain tests of sound measurement. | 10 | 2 | 4 | 1,2 |
| b) Explain the followings:   |    |   |   |     |
| i) Characteristics of hypothesis   |    |   |   |     |
| ii) Null and alternative hypothesis  |    |   |   |     |
| iii) Two-tailed and one-tailed test  |    |   |   |     |
| iv) Type-I and Type-II error   |    |   |   |     |
| v) Components of a research paper (layout wise)  | 10 | 2 | 4 | 1,2 |

**Unit - V**

- 9** a) What are the salient features of Indian patent act? 10 2 5 1,2  
b) What is the role of activity WIPO? 10 2 5 1,2
- OR**
- 10** a) What is the concept of IPR? List all related act with year of implemented. 10 2 5 1,2  
b) Write notes on the following:  
i) Patent  
ii) Copyright  
iii) Trademarks  
iv) Industrial design  
v) Trade secrets 10 2 5 1,2
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