

FACULTY OF ENGINEERING**M.E (Civil- (SE, TE) EEE, ECE, Mech) M.Tech (CSE) I-Semester (AICTE) (Main)****Examination, July 2021****Subject : Research Methodology and IPR****Time: 2 Hours****Max Marks: 70****Note: i. First Question is compulsory and answer any Three Questions from the remaining Six Questions.****ii Answers to each question must be written at one place only and in the same order as they occur in the question paper.****iii Missing data, if any may suitably be assumed.****1. Answer any Four Questions from the following****(4 X 4 = 16Marks)**

- a) List out the basic types of research
- b) State the components of a research problem
- c) What are the various steps involved in writing report?
- d) List out the various items which must be present in Research plan
- e) Draw the flow diagram for hypothesis testing
- f) What is Chi-square test? Explain its significance in statistical analysis.
- g) What are intellectual property rights?
2. a) Write short notes on criteria of good research. 6
- b) Explain the difference between research methods and research methodology. 12
3. a) State the basic assumptions of the ANOVA 4
- b) Briefly describe the important parametric tests used in context of testing hypothesis 14
4. a) Write short note on Latin-Square design 6
- b) Clearly explain how will you test the equality of variances of 2 normal populations? 12
5. Briefly explain the various steps involved in One-way ANOVA 18
6. Explain in detail about the various forms of Intellectual property 18
7. a) List out the conditions for Patent Grant 4
- b) Briefly explain about Patent Documents 14

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iii Missing data, if any may suitably be assumed.

- 1 **Answer any four questions from the following.** (4 x 4 = 16 Marks)
- (a) Importance of motivation in research.
 - (b) Types of research articles.
 - (c) Blind review
 - (d) Need of research design
 - (e) Null hypothesis
 - (f) Importance of latest references in research
 - (g) Time series analysis
- 2 (a) Explain various steps followed in the research problem formulation. [8]
(b) Write a note on the characteristics of a good research problem. [5]
(c) Discuss various ways of identifying a research problem. [5]
- 3 (a) Discuss various sources of scientific information in the literature review. [8]
(b) Appraise on importance of literature review. [5]
(c) How would you decide if a research paper is useful to you in your research? [5]
- 4 (a) Discuss various steps involved in creating an experimental setup. [7]
(b) What are the different Research designs? [7]
(c) Explain the importance of the use of standards and codes in research. [4]
- 5 (a) Discuss the importance of secondary data in research. [7]
(b) How statistical analysis of research data help in the interpretation of results? [7]
(c) Elaborate on the purpose of sampling in research. [4]
- 6 (a) Discuss the various methods of data presentation in a thesis. [7]
(b) How does research paper/technical report writing help college students? [6]
(c) Discuss the purpose and contents of a synopsis. [5]
- 7 (a) Problems encountered by researchers in India. [9]
(b) Discuss various methods of primary data collection. [9]