

**VINAYAKA MISSION'S RESEARCH FOUNDATION, SALEM**

**(Deemed to be University under Section 3 of the UGC Act, 1956)**

**Pre – Ph.D. Written Examination – August – 2024**

**Computer Science**

**Paper I: Research Methodology**

Time: 2 Hours

Marks: 50

**PART – A**

**(5\*2M= 10M)**

**Write Brief notes about the following**

Answer all questions

All questions carry equal marks

1. What is meant by objectives of research?
2. Define the knapsack problem using the greedy method.
3. What is software project scheduling?
4. Define coefficient of correlation.
5. What is called research integrity.

**PART – B**

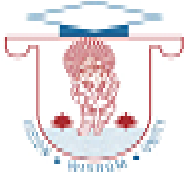
**(5\*4M=20M)**

**Write Short answers to the following**

Answer all questions choosing either a or b

All questions carry equal marks

1. a. Describe the criteria of good research.  
**Or**  
b. Explain the different types of research designs.
2. a. What are optimal binary search trees in dynamic programming?  
**Or**  
b. Explain the concept of flow shop scheduling.
3. a. What are the key aspects of software estimation? Explain it.  
**Or**  
b. Discuss the role of software design in the development process.
4. a. Describe the scatter diagram method for studying correlation.  
**Or**  
b. Explain the algebraic method of studying regression.



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5. a. What are redundant publications and how do they affect research integrity?

**Or**

b. Discuss best practices for publication ethics as per COPE guidelines.

**PART – C**

**(2\*10M=20M)**

Answer any two essay type questions

All questions carry equal marks

1. Explain in detail the different steps involved in writing a research report.
2. Describe dynamic programming techniques with examples such as the traveling salesperson problem and 0/1 knapsack problem.
3. Discuss the various software engineering process paradigms and their importance in project management.
4. Explain the coefficient of determination and its relevance in regression analysis. Provide examples.
5. What are predatory publishers and journals? Discuss their impact on research and how to identify them.

