

Reg.No.:



VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
 [AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
 Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 50052

M.E. / M.Tech. DEGREE END-SEMESTER EXAMINATIONS – FEB. 2025

First Semester

Computer Science and Engineering

P23CS103 – RESEARCH METHODOLOGY AND IPR

(Common to Information Technology)

(Regulation 2023)

Time: Three Hours

Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Tabulate the differences between fundamental and applied research.	2	K1	CO1
2.	How does the research process ensure the reliability and validity of findings?	2	K2	CO1
3.	Distinguish nominal vs. ordinal measurement scales.	2	K2	CO2
4.	List two common sources of error in measurement.	2	K2	CO2
5.	Recall two common problems encountered in the data preparation process.	2	K1	CO3
6.	Name two types of statistical analysis commonly used in research.	2	K1	CO3
7.	State the significance of the null hypothesis in hypothesis testing.	2	K2	CO4
8.	Name two common types of research reports.	2	K1	CO4
9.	Brief the significance of geographical indications in protecting regional products.	2	K2	CO5
10.	State the purpose of copyright protection in intellectual property law and specify the validity period of copyright protection.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	Examine the differences between quantitative and qualitative research methods with a case study on customer satisfaction in e-commerce.	13	K3	CO1
	(OR)			
b)	Discuss the problems commonly faced by researchers in India. Discuss how these issues hinder the advancement of research in the country and suggest potential solutions.	13	K2	CO1
12. a)	Design an experimental research study to investigate the effect of a new teaching method on student performance. Outline the research design, key variables, and the basic principles to follow.	13	K3	CO2
	(OR)			
b)	Explain exploratory, descriptive, and experimental research designs. Explain the most appropriate research scenarios for these research designs by considering the key factors that influence the suitability of each design.	13	K2	CO2
13. a)	Suppose you are conducting an experiment to evaluate the effectiveness of a new drug. Explain the steps involved in collecting the primary data, handling any missing values or outliers, and preparing the data for analysis. Elaborate the steps.	13	K3	CO3
	(OR)			
b)	Differentiate primary and secondary data. Write a comprehensive data collection plan that includes both primary and secondary data sources. Discuss the advantages and disadvantages of each in the context of a market research study.	13	K3	CO3
14. a)	Given a dataset, outline the steps for testing a hypothesis about the mean of a population. Include the calculations for the test statistic.	13	K3	CO4
	(OR)			
b)	Explain the P-value approach and the critical value approach in hypothesis testing, discussing their strengths and weaknesses. Additionally, describe a scenario where a Chi-Square test would be appropriate, conduct the test, and interpret the results.	13	K3	CO4

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| 15. | a) | Consider a design infringement case in the fashion industry. Discuss the legal steps involved in protecting design rights and the remedies available for infringement. | 13 | K3 | CO5 |
| (OR) | | | | | |
| 15. | b) | Discuss patent law and trade secret law. Discuss the advantages and disadvantages of each in protecting innovations. Discuss a real-life case study. | 13 | K3 | CO5 |

PART – C

(1 x 15 = 15 Marks)

- | Q.No. | Questions | Marks | KL | CO |
|---|-----------|-------|----|-----|
| 16. | a) | 15 | K5 | CO2 |
| A retail company needs to launch a new product and is concerned about customer perception. As a researcher, you have been tasked with designing a study to assess customer attitudes toward this new product. Using the principles of research design and scaling techniques, develop a comprehensive research plan that includes the selection of the appropriate research design, data collection methods, scaling techniques, and approaches to ensure validity and reliability. Consider potential sources of error and outline the steps to minimize these errors. Provide detailed justifications for each decision you make in the design process. | | | | |
| (OR) | | | | |
| 16. | b) | 15 | K5 | CO4 |
| Conduct a study to examine the impact of a new marketing strategy on customer purchasing behavior. Develop a comprehensive research report that includes the following: an introduction with a research hypothesis, the methodology used for data collection and hypothesis testing, a detailed analysis of the findings, and an interpretation of the results. Discuss the implications of the findings and provide recommendations for future research. Include considerations for the limitations of the study and suggestions for improving hypothesis testing within the research context. | | | | |