

U.S.N.

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

January / February 2025 Semester End Main Examinations**Programme: B.E.****Semester: V****Branch: Information Science and Engineering****Duration: 3 hrs.****Course Code: 23IS5AERML****Max Marks: 100****Course: Research Methodology**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.			UNIT - I	<i>CO</i>	<i>PO</i>	Marks
	1	a)	Differentiate between Research Methods and Methodology.	<i>CO1</i>	-	5
		b)	Suppose you have decided to do research, then what are the possible motives for doing research?	<i>CO1</i>		5
		c)	Discuss various stages a researcher has to follow to carry out the research work effectively with a flow diagram.	<i>CO1</i>		10
			OR			
	2	a)	Define 'Research' and discuss its objectives.	<i>CO1</i>	-	5
		b)	Illustrate the technique involved in defining a research problem with an example.	<i>CO1</i>		7
		c)	Compare the following with examples. (i) Descriptive vs. Analytical Research (ii) Quantitative vs. Qualitative Research	<i>CO1</i>	-	8
			UNIT - II			
	3	a)	You are a graduate student preparing to conduct a research study on the impact of social media usage on academic performance among college students. Before starting your research, your guide asks you to conduct a comprehensive literature review. Analyze the steps you will involve in conducting a literature review.	<i>CO2</i>	<i>PO1, PO2</i>	6
		b)	Suppose you want to conduct research in humanities, what are the four Ps involved in providing a clear path to defining and structuring research questions?	<i>CO2</i>	<i>PO1, PO2</i>	6
		c)	Discuss the important factors to be considered when selecting a research problem to ensure a successful and meaningful study.	<i>CO1</i>	-	8
			OR			
	4	a)	Suppose you want to conduct a study in the area of health. Illustrate the steps involved in formulating the research problem.	<i>CO2</i>	<i>PO1, PO2</i>	10
		b)	What are the research objectives? Briefly elucidate the formulation of research objectives.	<i>CO1</i>	-	10

		UNIT - III			
5	a)	Imagine you are planning a research study to examine the relationship between time management skills and academic performance among high school students. What key aspects of research design should be taken into account to structure this study effectively?	CO2	PO1, PO2	10
	b)	A population is divided into three strata so that $N_1 = 4500$, $N_2 = 2500$ and $N_3 = 3200$. Respective standard deviations are: $\sigma_1 = 15$, $\sigma_2 = 10$, $\sigma_3 = 18$, How should a sample of size $n = 78$ be allocated to the three strata, if we want optimum allocation using a disproportionate sampling design?	CO2	PO1, PO2	10
		OR			
6	a)	Examine the parts of research design by considering the disease prediction model for tomato plants.	CO2	PO1, PO2	6
	b)	The following are the number of departmental stores in 15 cities: 35, 17, 10, 32, 70, 28, 26, 19, 26, 66, 37, 44, 33, 29 and 28. If we want to select a sample of 10 stores, using cities as clusters and selecting within clusters proportional to size, how many stores from each city should be chosen? (Use a starting point of 10).	CO2	PO1, PO2	10
	c)	Illustrate the basic principles of experimental design as proposed by Professor Fisher?	CO1	-	4
		UNIT - IV			
7	a)	Describe the observation data collection method with its types.	CO1	-	7
	b)	Compare structured and unstructured interviews.	CO1	-	7
	c)	As a researcher, if you have collected data using secondary sources, analyze the problems faced by you in using the data from secondary sources.	CO2	PO1, PO2	6
		OR			
8	a)	Identify the stakeholders in research activity and discuss the various ethical issues to be considered concerning research participants.	CO1	-	7
	b)	Compare the open-ended questions with closed questions.	CO1	-	5
	c)	Describe the questionnaire data collection method along with its administering ways. Also, provide the demerits of using a questionnaire over an interview.	CO1	-	8
		UNIT - V			
9	a)	"Interpretation is a basic component of research process." Justify the statement.	CO3	PO2	5
	b)	Describe the various steps involved in research report writing.	CO3	PO2	7
	c)	Outline the comprehensive layout of the research report.	CO3	PO2	8
		OR			
10	a)	Summarize the mechanics of writing a research report.	CO3	PO2	12
	b)	Explain the various precautions to be taken for writing good research report.	CO3	PO2	8
