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

Autonomous Institute Affiliated to VTU

January / February 2025 Semester End Main Examinations

Programme: B.E. **Semester: VII**
Branch: Artificial Intelligence and Machine Learning **Duration: 3 hrs.**
Course Code: 22AM7HSRMD **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	*CO*	*PO*	Marks
1	a)		Apply the concept of research approaches to a real-world scenario. Provide examples of situations where qualitative and quantitative approaches would be most appropriate.	*CO2*	*PO1*	++++ +++
	b)		Compare and contrast quantitative and qualitative research approaches, highlighting their strengths and limitations.	*CO2*	*PO1*	**6**
	c)		Explain the importance of a well-defined research problem and its role in the research process.	*CO1*	*PO1*	**6**
			(OR)			
2	a)		Compare and contrast research method and research methodology.	*CO2*	*PO1*	**8**
	b)		List the criteria for good Research.	*CO2*	*PO1*	**6**
	c)		Conver the following into a well-defined research problem statement. 1. How does ChatGPT effect on education sector? 2. How can we improve the literacy rate? 3. Why does long term investments have impact on taxes? 4. Why is the productivity of IT growth more in India than USA?	*CO1*	*PO1*	**6**
			UNIT – II			
3	a)		Consider a research topic, design a strategy for searching existing literature. Discuss the criteria you would use to select relevant literature.	*CO1*	*PO1*	**10**
	b)		Analyze the importance of random assignments in experimental designs. How does it contribute to the validity of the study?	*CO1*	*PO2*	**10**
			OR			
4	a)		Apply the principles of developing a conceptual framework to a hypothetical research scenario. Discuss the elements that should be considered.	*CO1*	*PO1*	**10**

		b)	Analyze the meaning of "research design" and its role in the overall research process.	*CO1*	*PO2*	**10**
			UNIT – III			
	5	a)	Design a research study and determine the most suitable type of sampling method based on the research objectives and constraints.	*CO1*	*PO2*	**10**
		b)	Explain the factors that determine the goodness of measurement scales. How do researchers ensure reliability and validity?	*CO1*	*PO1*	**10**
			OR			
	6	a)	Analyze the bases for classifying scales. How does the level of measurement impact data analysis and interpretation?	*CO1*	*PO2*	**10**
		b)	Describe the techniques for developing measurement tools.	*CO1*	*PO1*	**10**
			UNIT – IV			
	7	a)	Analyze the factors influencing the selection of appropriate methods for primary data collection. Also Interpret how researchers weigh the trade-offs in choosing a method.	*CO1*	*PO2*	**8**
		b)	Compare and contrast different techniques within a primary data collection method (e.g., interviews, surveys). Discuss the suitability of each technique for specific research scenarios.	*CO2*	*PO2*	**6**
		c)	Develop a plan for combining primary and secondary data collection methods in a comprehensive research study.	*CO1*	*PO3*	**6**
			(OR)			
	8	a)	Illustrate in detail on Delphi data collection strategy.	*CO1*	*PO2*	**8**
		b)	Justify various sources of data collection strategies with examples.	*CO2*	*PO2*	**6**
		c)	What are the various statistics and Measures available for scaling	*CO1*	*PO3*	**6**
			UNIT - V			
	9	a)	Develop a plan to integrate the interpretation of research findings seamlessly into the report-writing process.	*CO3*	*PO3*	**10**
		b)	Create a detailed outline for a research report on the research topic "Fine tuning of LLMS". Include key sections, headings, and subheadings.	*CO3*	*PO3*	**10**
			(OR)			
	10	a)	Illustrate the significance of report writing. Provide an example of a research report.	*CO3*	*PO3*	**10**
		b)	Provide examples of writing bibliography for journal, conference, reports, patents and standards.	*CO3*	*PO3*	**10**

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