

U.S.N.								
--------	--	--	--	--	--	--	--	--

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

Autonomous Institute Affiliated to VTU

## June 2025 Semester End Main Examinations

**Programme: B.E.**

**Semester: VI**

**Branch: Computer Science and Engineering**

**Duration: 3 hrs.**

**Course Code: 23CS6AERML**

**Max Marks: 100**

**Course: Research Methodology and IPR**

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

			<b>UNIT – I</b>			<b>CO</b>	<b>PO</b>	<b>Marks</b>
<b>Important Note:</b> Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.	1	a)	What is Research? Explain different criteria of Good Research					
		b)	Briefly explain the types of Research.					
		c)	Explain different Research process steps with a flowchart.					
	<b>OR</b>							
	2	a)	Explain two different classes of Explicit communication and Interaction.					
		b)	List and Explain different Quality Requirements that are most relevant in Modern Programming.					
		c)	Write a Short note on Computer Simulation.					
	<b>UNIT – II</b>							
	3	a)	Define Research Problem? Explain the necessity of defining the problem.					
		b)	What are the key points that may be observed by a researcher in selecting a research problem.					
		c)	Describe the techniques of defining a research problem.					
	<b>OR</b>							
	4	a)	How to search for the existing literature.					
		b)	Explain Reviewing the selected literature.					
		c)	Describe developing a conceptual Framework.					

<b>UNIT – III</b>					
5	a)	<p>A marketing analyst wants to know if three different types of advertisements (TV, online, print) lead to different average product sales. She collects sales data from three groups, each exposed to a different ad type.</p> <p>Identify and Explain what statistical test should be used and why? Elaborate on what a significant result would imply.</p>	<i>CO1</i>	<i>PO1</i>	<b>10</b>
	b)	<p>A quality control engineer monitors a machine that produces bolts. Over time, she records whether each bolt is acceptable (A) or defective (D). She wants to test if defects occur randomly. What is the appropriate test? Identify and Explain.</p>	<i>CO1</i>	<i>PO1</i>	<b>10</b>
	<b>OR</b>				
6	a)	<p>A software company implements a new training program to improve employee productivity. The management believes that the new training leads to an increase in the number of tasks completed per day. A sample of 40 employees who completed the training program had an average task completion of 52 tasks/day with a standard deviation of 5. Historically, the average was 50 tasks/day.</p> <ol style="list-style-type: none"> <li>i) As a researcher, test the hypothesis at a 5% level of significance using the P-value approach.</li> <li>ii) Clearly define the hypothesis and conclude whether the training is effective.</li> </ol>	<i>CO2</i>	<i>PO2</i>	<b>10</b>
	b)	<p>An agricultural researcher wants to study how fertilizer type (Organic, Chemical) and irrigation method (Drip, Sprinkler) affect crop yield. The data is collected in all combinations (2x2).</p> <ol style="list-style-type: none"> <li>i) Identify and Explain what statistical test should be used and why?</li> <li>ii) Elaborate on what a significant result would imply.</li> </ol>	<i>CO2</i>	<i>PO2</i>	<b>10</b>
	<b>UNIT – IV</b>				
7	a)	<p>A student completes a survey on job satisfaction among IT professionals. His data shows a weak positive correlation between flexible hours and job satisfaction. However, he interprets the result as: “Flexible hours lead to high job satisfaction.”</p> <ol style="list-style-type: none"> <li>i) Identify and explain the mistake in interpretation. What are some precautions that researchers should take when interpreting data?</li> </ol>	<i>CO2</i>	<i>PO2</i>	<b>10</b>
	b)	<p>A postgraduate student has completed a project but is unsure how to begin writing the research report. He is tempted to start with the conclusion and write the report backwards.</p> <ol style="list-style-type: none"> <li>i) What shouldn't a report be written backward? What are the standard steps in writing a research report? Explain the logical structure and layout of a standard research report.</li> </ol>	<i>CO2</i>	<i>PO2</i>	<b>10</b>

			<b>OR</b>			
	8	a)	<p>A student is scheduled to present her research on environmental awareness to a panel. She plans to read her entire research report word-for-word using slides with dense text.</p> <p>i) Identify the problems with her current plan. What are the key elements of an effective oral presentation? Incase she wants to continue with her plan, suggest improvements that she can incorporate into her slides.</p>	CO2	PO2	<b>10</b>
		b)	<p>A researcher working for a private company submits a 150-page detailed academic report to senior management. The management team finds it too long and difficult to understand.</p> <p>i) Identify and explain the different types of research reports? Which type would be appropriate in this case and why?</p>	CO2	PO2	<b>10</b>
		c)	<p>Describe the precautions that the researchers should take while interpreting his findings.</p>	CO1	PO1	<b>10</b>
<b>UNIT – V</b>						
	9	a)	Justify how IP is treated as a global indicator of innovation.	CO1	PO1	<b>4</b>
		b)	Define Patent. What are the conditions for obtaining a patent protection.	CO1	PO1	<b>6</b>
		c)	Describe the different designation of trademark Symbols and explain the Classification of Trademarks.	CO1	PO1	<b>10</b>
<b>OR</b>						
	10	a)	What is copyright? And write its classes. Explain two rights owned by the copyright owner.	CO1	PO1	<b>4</b>
		b)	What is Trademark? Explain the Eligibility criteria for Trademark.	CO1	PO1	<b>6</b>
		c)	Explain major Amendments in IP Laws and Acts in India	CO1	PO1	<b>10</b>

\*\*\*\*\*