U.S.N.										

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

Autonomous Institute Affiliated to VTU

August 2024 Supplementary 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.

		UNIT - I	*CO*	*PO*	Marks
1	a)	Differentiate Qualitative Research and Quantitative Research.	*CO2*	*PO2*	**8**
	b)	Imagine a rare disease was spread in the country and medical researchers are in need to collect samples and perform an experimental study. Analyze this scenario and provide a sampling solution for both small and large samples.	*CO2*	*PO2*	**6**
	c)	"problem clearly stated is a problem half solved" – Justify this statement with suitable example.	*CO2*	*PO2*	**6**
		UNIT - II			
2	a)	Perform observational study research on to understand the interactions between individuals and toddlers in a natural environment. Consider the following parameters for the study. (Location, sampling, observation method, observation period, variables to observe, ethical considerations).	*CO1*	*PO1*	**6**
	b)	Illustrate the variables that are essential to build conceptual research frame work. Provide examples for each variable.	*CO1*	*PO1*	**10**
	c)	Define a control variable. Design control variables for an experiment on plant development.	*CO2*	*PO2*	**4**
		OR			
3	a)	Illustrate the following research design concepts. i. Experimental and non-experimental hypothesis ii. Treatment iii. Experiment iv. Experimental Unit v. Experimental and control groups.	*CO2*	*PO2*	**10**
	b)	For the biologist researcher comparing the yields of four types of onion seeds (A, B, C, D) over a land divided into 16 subplots	*CO2*	*PO2*	**6**

		in different directions (East, West, North, South), a suitable experimental design would be a Factorial Experiment with two factors: Seed Type and Plot orientation. What are the advantages of factorial experiments.			
	c)	Illustrate the purpose of literature review.	*CO2*	*PO2*	**4**
		UNIT - III			
4	a)	Define Control Variable. Also Design all suitable and the required control variables for the following research questions (RQ) i. Will drinking coffee improve memory recall? ii. Will soil quality affect the plant growth?	*CO2*	*PO2*	**10**
	b)	A researcher wants to conduct a research using stratified sampling technique and his target market is school students to understand what books they like to read. Identify and analyze any 5 potential strata's that influence and help the researcher during his research study. Provide rationale for each of the identified strata.	*CO2*	*PO2*	**5**
	c)	Illustrate the power of sampling during research study.	*CO2*	*PO2*	**5**
		OR			
5	a)	Do open-ended questions or closed-ended questions are suitable for conducting research. Provide your analysis with suitable examples.	*CO2*	*PO2*	**8**
	b)	Illustrate various source of errors that can occur during the course of research sampling collection.	*CO2*	*PO2*	**8**
	c)	Apply Tippets Random Number Table to draw 10 3-digit even numbers. 2952 6641 3992 9792 7969 5911 3170 5624 4167 9524 1545 1396 7203 5356 1300 2693 2670 7483 3408 2762 3563 1089 6913 7991 0560 5246 1112 6107 6008 8125 4233 8776 2754 9143 1405 9025 7002 6111 8816 6446	*CO1*	*PO1*	**4**
		UNIT - IV			
6	a)	Distinguish between published data and unpublished data for secondary source of data collection.	*CO2*	*PO2*	**5**
	b)	Provide your detailed analysis on why questionnaire technique is considered as heart of survey operation.	*CO2*	*PO2*	**10**
	c)	Distinguish pantry audits and consumer panel form of data collection.	*CO2*	*PO2*	**5**

			UNIT - V			
	7	a)	Define research Interpretation and Provide solutions for interpretation the same.	*CO3*	*PO1*	**6**
		b)	Illustrate the essential measures and analysis required for during report writing.	*CO3*	*PO2*	**6**
		c)	You are completing your master level or Ph.D. level thesis and you are supposed to carefully present and report your research methodology. Provide valid content representation of your research methodology that examiner looks for.	*CO1*	*PO1*	**4**
		d)	Represent the research work in the form of IEEE bibliography standard for (Author/s, title, volume, page numbers, issues, year of publication etc., Required data can be assumed accordingly) i. Conference Proceedings ii. Journal iii. Patent iv. Ph.D. dissertation.	*CO1*	*PO1*	**4**

****