Code No.: 20-CS–PC-322 | **R20** | H.T.No. | | | R | 0 | | | | | |

CMR INSTITUTE OF TECHNOLOGY: HYDERABAD
UGC AUTONOMOUS
III–B.Tech.II–Semester-I- Mid Term Examinations – MAR – 2024
MACHINE LEARNING AND DATA SCIENCES
(CSE, CSE (AI & ML), CSE (DS), AI & ML, AI & DS)

[Time: 90 Minutes]   **[Max. Marks: 25]**

Note   1. This question paper contains two parts A and B.
   2. Part A is compulsory and carries 10 marks. Answer all questions in Part A.
   3. Part B consists of 3 questions. Answer all 3 questions. Each question carries 5 marks and may have sub-questions.
   4. Illustrate your answers with NEAT sketches wherever necessary.

PART-A   **5 x 2M=10M**

S. No.		Question	BTL	CO	POs & PSOs
1	a	Relate the concepts of correlation and causation.	2	1	2,3,6,12, 1
	b	Simplify vectors in machine learning. What are the different operations performed on them.	2	1	2,3,6,12, 1
	c	How do you find k-Nearest Neighbors with an example?	1	2	2,3,6,12, 1
	d	Compare and contrast classification and regression.	2	2	2,3,6,12, 1
	e	Why neural networks are used in Deep Learning?	1	3	2,3,6,12, 1

PART-B   **3 x 5M=15M**

S. No.	Question	BTL	CO	POs & PSOs
2	i) How do you find the distribution of a continuous variable? ii) What is Bayes Theorem? Explain with examples	2	1	2,3,6,12, 1
OR				
3	What is the relationship between hypothesis testing and confidence interval? Is confidence interval a statistical inference? Justify your answer.	1	1	2,3,6,12, 1
4	What do you mean by regularization? Explain the different regularization methods.	2	2	2,3,6,12, 1
OR				
5	Explain Random Forest algorithm with an example.	2	2	2,3,6,12, 1
6	Demonstrate Find-S algorithm. Mention the difference between general hypothesis and specific hypothesis with an example.	2	3	2,3,6,12, 1
OR				
7	Explain the process of learning by rule induction with an example.	2	3	2,3,6,12, 1