Total No. of Pages: 1

Student Name: .....

Enrollment No: .....

Mid-Term Examination – November 2023

Programme: B.Tech (IIOT)

Paper Code: IOT 309

Time: 1½Hrs.

Semester: Fifth Semester

Paper Name: Machine Learning

Maximum Marks: 30

Note:
- Question No. 1 is compulsory.
- Attempt any two questions from the remaining questions.
- Some questions have internal choice also.
- All questions carry equal marks.
- Only scientific calculator is allowed.

Q. No.	Question 1	Marks	CO
1(a)	Differentiate Bagging and Boosting techniques.	[2.5]	1
1(b)	List the basic design issues to Machine Learning.	[2.5]	1
1(c)	Why Random Forest is preferred over Decision Tree?	[2.5]	2
1(d)	Differentiate Bias and Variance.	[2.5]	1
	Question 2		
2(a)	Differentiate Feature Selection and Feature Extraction techniques. **OR** Differentiate Over fitting and Under fitting with example.	[5]	1
2(b)	Consider the data from a Survey to determine the quality of a metal. Classify a new metal with X1=3 and X2 =7 using KNN algorithm(with K =3)	[5]	4
	Question 3		
3	Discuss various steps of developing a learning system for playing Checkers. **OR** Derive the expression of cost function for a Support Vector Classifier	[10]	3
	Question 4		
4	Write a note on **any Two:** (i) Outlier Detection Techniques (ii) Supervised and Unsupervised Learning (iii) Naïve Bayes	[5+5]	1

X1 (Durability)	X2(Strength)	Y(Classification)
7	7	Bad
7	4	Bad
3	4	Good
1	4	Good