12/11/2024

BE | Comp | Sem-VII | CBCGS | R-19 | C-scheme | ML | SH-2024

Duration: 3 Hours   **[Max. Marks: 80]**

QP-10066208

N.B.: (1) Question No 1 is Compulsory.
       (2) Attempt any **THREE** questions out of the remaining **FIVE**.
       (3) All questions carry equal marks.
       (4) Assume suitable data, if required and state it clearly.

Q1	Attempt any **FOUR**	**[20]**
A	Explain Training error and Generalization error.	
B	Differentiate between Supervised and unsupervised Learning	
C	Differentiate between Linear regression and Logistic regression.	
D	Explain issues in Machine learning.	
E	Explain performance evaluation metrics for the classification.	
Q2 A	Demonstrate MST algorithm along with example.	**[10]**
B	Explain Logistics regression and performance evaluation metrics.	**[10]**
Q3 A	Demonstrate steps to design a Machine Learning application.	**[10]**
B	What is over fitting, under fitting and Bias variance trade-off with reference to Machine learning?	**[10]**
Q4 A	Demonstrate Ensemble learning based Random Forest algorithm in detail.	**[10]**
B	Suppose we want Gini index to decide whether the car will be stolen or not. The target classification is "car is stolen?" which can be Yes or No, create a decision tree for the given data below.	**[10]**

Car no	Colour	Type	Origin	Stolen ?	Car no	Colour	Type	Origin	Stolen ?
1	Red	Sports	Domestic	Yes	6	Yellow	SUV	Imported	No
2	Red	Sports	Domestic	No	7	Yellow	SUV	Imported	Yes
3	Red	Sports	Domestic	Yes	8	Yellow	SUV	Domestic	No
4	Yellow	Sports	Domestic	No	9	Red	SUV	Imported	No
5	Yellow	Sports	Imported	Yes	10	Red	Sports	Imported	Yes

Q5 A	Give steps to design PCA dimensional reduction technique along with an example.	**[10]**
B	Demonstrate DBSCAN algorithm along with example.	**[10]**
Q6	Write detailed note on following. (**Any TWO**)	**[20]**
A	Write a short note on XGBoost ensemble method.	
B	Explain support vector machine as constraint optimization problem.	
C	SVM Kernel trick	

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