Total No. of Questions : 8]

SEAT No. : B190954274

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PA-913

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B.E. (Computer)

MACHINE LEARNING

(2019 Pattern) (Semester - VII) (410242)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) *Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q6, Q.7 or Q.8.*
2) *Neat diagrams must be drawn wherever necessary.*
3) *Figures to the right indicate full marks.*
4) *Make suitable assumption whenever necessary.*

Q1) a) Explain in brief techniques to reduce under fitting and over fitting. **[6]**

b) Find the Equation of linear Regression line using following data : **[6]**

X	Y
1	3
2	4
3	5
4	7

c) Write short note on : **[6]**

i) MAE

ii) RMSE

iii) R^2

OR

Q2) a) Explain in brief lasso and Ridge Regression. **[6]**

b) What is Bias and variance trade off for machine learning model? **[6]**

c) Write short note on Evaluation metrics. **[6]**

P.T.O.

Q3) a) Explain in brief methods used for Evaluating classification models. **[5]**

b) Consider the following data to predict the student pass or fail using the K-Nearest Neighbor Algorithm (KNN) for the values physics = 6 marks, Chemistry = 8 marks with number of Neighbors K = 3. **[6]**

Physics (marks)	Chemistry (marks)	Results
4	3	Fail
6	7	Pass
7	8	Pass
5	5	Fail
8	8	Pass

c) Write short note on Ensemble learing methods : **[6]**

i) Simple

ii) Advanced

OR

Q4) a) Explain Random forest Algorithm with example. **[5]**

b) Write short note on importance of confusion matrix. **[6]**

c) Define following terms with reference to SVM. **[6]**

i) Separating hyperplane

ii) Margin

Q5) a) Explain Density Based clustering with refence to DBSCAN, OPTICS and DENCLUE. **[6]**

b) What is K mean clustering? Explain with example. **[6]**

c) Write short note on following Hierarchical clustering method : **[6]**

i) Agglomerative

ii) Dendogram

OR

Q6) a) What is LOF? Explain it with it's advantages and disadvantages. **[6]**

b) Explain Graph Based clustering. **[6]**

c) Define following terms : **[6]**

i) Elbow method

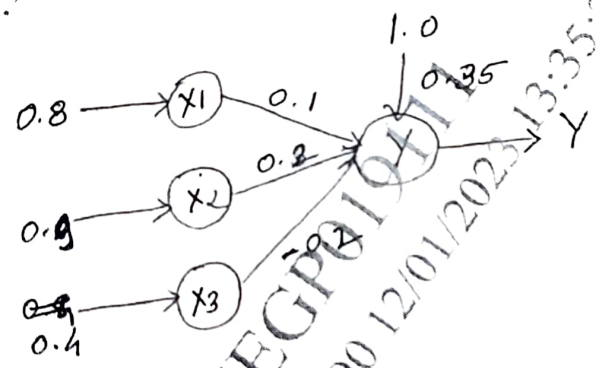
ii) Extrinsic and Intrinsic method

Q7) a) Explain ANN with it's Architecture. **[5]**

b) Obtain the output of Neuron Y for the Network shown in following fig. Using activation function as : **[6]**

i) Binary sigmoidal

ii) Bipolar sigmoidal



c) Write short note on Back propagation network. **[6]**

OR

Q8) a) Explain in brief types of ANN based on layers. **[5]**

b) What is Recurrent Neural Network? Explain with suitable example. **[6]**

c) Write short note on with refernce with CNN. **[6]**

i) Convolution layer

ii) Hidden layer

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