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B.E. (Computer Engineering)

MACHINE LEARNING

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

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume suitable data if necessary.***

Q1) a) Differentiate between overfitting and underfitting. **[6]**

b) The table below shows the number of grams of carbohydrates, X and the number of Calories, Y of six different foods. Find linear regression equation for this dataset. **[8]**

Carbohydrates (X)	8	9.5	10	6	7	4
Calories (Y)	12	138	147	88	108	62

Also find the value of Y for X = 12

c) Explain Bias Variance Trade off. **[4]**

OR

Q2) a) What is Linear Regression? Explain the concept of Ridge regression. **[9]**

b) Explain the following Evaluation Metrics : **[9]**

i) MAE

ii) RMSE

iii) R2

Q3) a) Differentiate between bagging and boosting. **[4]**

b) What is ensemble learning? Explain the concept of Random Forest ensemble learning. **[9]**

c) What is the relation between precision and recall? Explain with an example. **[4]**

P.T.O.

OR

Q4) a) What is K-fold cross-validation? In K-fold cross-validation, comment on the following situations **[9]**

i) When the value of K is too large

ii) When the value of K is too small.

How do you decide the value of k in k-fold cross-validation?

b) Explain i) Accuracy, ii) Precision, iii) Recall, and iv) F-Score **[8]**

Q5) a) Explain K-Means clustering in detail with a suitable example. **[8]**

b) What is outlier analysis? How is Local Outlier Factor detected? **[5]**

c) Explain Spectral Cluster in galgorithm. **[5]**

OR

Q6) a) Explain Hierarchical and Density-based Clustering approaches. **[9]**

b) Write short note on : **[9]**

i) Optimization of clusters

ii) K-Medoids

iii) Evaluation metrics

Q7) a) Write a note on Single Layer Neural Network. **[4]**

b) Explain Radial Basis Function networks in detail. **[8]**

c) Explain Recurrent Neural Networks and its applications in brief. **[5]**

OR

Q8) a) Explain the concept of Back Propagation in ANN with example. **[8]**

b) What is Functional Link Artificial Neural Network (FLANN)? Explain its merits over other ANNs. **[5]**

c) What is Activation Function? Explain with a suitable example. **[4]**

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B.E. (Computer Engineering)

BLOCKCHAIN TECHNOLOGY

(2019 Pattern) (Semester - VII) (End Semester) (Elective) (410243)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Attempt Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.***
2) ***Figures to the right side indicate full marks.***
3) ***Neat diagram must be drawn wherever necessary***
4) ***Assume suitable data if necessary***

Q1) a) Explain any two **[6]**

i) R3

ii) Ethereum

iii) Hyperledger

iv) Corda

b) Explain Proof of work with example. **[6]**

c) What is Byzantine General Problem? Explain its significance. **[6]**

OR

Q2) a) Explain any two Blockchain platforms. **[6]**

i) Public

ii) Private

iii) Consortium

b) Explain proof of stake with example. **[6]**

c) What is consensus in Blockchain? **[6]**

Q3) a) Discuss the concept of Cryptowallets? **[6]**

b) Discuss types of cryptocurrency? **[6]**

c) What is Metamask? **[5]**

OR

P.T.O.