

Total No. of Questions : 8]

SEAT No. :

P708

[Total No. of Pages : 2

[6004]-701

**B.E. (Computer Engineering) (Honours in Data Science)
MACHINE LEARNING AND DATA SCIENCE
(2019 Pattern) (Semester-VII) (410501)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q. 1 or Q. 2, Q. 3 or Q. 4, Q. 5 or Q. 6, Q.7 or Q.8
- 2) Neat diagrams must be drawn wherever necessary
- 3) Figures to the right indicate full marks
- 4) Assume suitable data, if necessary

- Q1)** a) Explain unsupervised learning. [6]
b) What do you mean by divisive clustering techniques? Explain with an example. [6]
c) What is the role of dendrograms in choosing number clusters in hierarchical clustering? [6]

OR

- Q2)** a) What are the types of hierarchical clustering methods? Explain. [6]
b) For what type of data Density-Based Spatial Clustering is suitable? Which parameters are required by DBSCAN algorithm? [6]
c) Explain K-Medians clustering algorithm. [6]

- Q3)** a) Explain a biological neuron along with its parts. [4]
b) What is the difference between Forward propagation and Backward Propagation in Neural Networks? [6]
c) What is the role of the Activation functions in Neural Networks? List down the names of some popular Activation Functions used in Neural Networks. [7]

OR

P.T.O.

- Q4)** a) Enlist limitations of MLP. [4]
b) Explain the process of training a perceptron. [6]
c) Explain back propagation algorithm. [7]

- Q5)** a) Does the size of the feature map always reduce upon applying the filters? Explain why or why not. [6]
b) Illustrate Gradient descent optimization using an example. [6]
c) Explain Recurrent Neural Network [6]

OR

- Q6)** a) Explain Recursive Neural Network [6]
b) Explain the different layers in CNN. Explain the significance of the RELU Activation function in Convolution Neural Network. [6]
c) Illustrate Long-short Term Memory along with its structure. [6]

- Q7)** a) What are various text similarity measures? Explain any two of them. [6]
b) Write short note on [6]
i) Stemming
ii) Lemmatization
c) What are the practical uses of feature extraction? [5]

OR

- Q8)** a) What do you mean by topic modeling? Explain Latent Dirichlet Allocation. [6]
b) Explain feature selection and extraction. [6]
c) Write short note on document representation. [5]

