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[5927]-465

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 K-Means algorithm with an example.

[6]

- b) How to measure the quality of clustering? Explain any three measures.[6]
- c) What are different types of partitional clustering? Explain any two of them. [6]

OR

Q2) a) Explain KNN algorithm with example.

[6]

b) Cluster the following dataset using Agglomerative Hierarchical clustering technique - [6]

	X_{1}	X_2
A	10	5
В	1	4
С	5	8
D	9	2
Е	12	10
F	15	8
G	7	7

Also show intermediate steps

c) What is the role of dendrograms in choosing number clusters in hierarchical clustering? [6]

Q 3)	a)	Enlist limitations of MLP.	[4]
	b)	What are the types of artificial neural network?	[6]
	c)	What is the role of the activation functions in Neural Networks? I down the names of some popular activation functions used in Networks.	
		OR	
Q 4)	a)	Explain Multilayer Perception.	[4]
	b)	Explain Generalized Delta Learning Rule.	[6]
	c)	How does the learning rate affect the training of the Neural Netwo What do you mean by Hyperparameters?	ork? [7]
Q 5)	a)	Explain the different layers in CNN. Explain the significance of the RE Activation function in Convolution Neural Network.	LU [6]
	b)	Illustrate Long-short Term Memory along with its structure.	[6]
	c)	Explain the terms "Valid Padding" and "Same Padding" in CNN. I down the Hyperparameters of a Pooling Layer.	List [6]
		OR	
Q6)	a)	Explain CNN Architecture along with diagram.	[6]
	b)	Explain Recurrent Neural Network.	[6]
	c)	Illustrate Gradient descent optimization using an example.	[6]
Q 7)	a)	Explain the process of text preprocessing.	[6]
	b)	Write short note on document representation.	[6]
	c)	What are the practical uses of feature extraction?	[5]
		OR	
Q8)	a)	What are various text similarity measures? Explain any two of them.	[6]
	b)	Explain various feature selection methods.	[6]
	c)	Illustrate tokenization with an example.	[5]

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