SVKM's Dwarkadas J. Sanghvi College of Engineering Acad .Year 2022-2023 YEAR III / Semester VI

Program: B.Tech in Computer Engineering

Subject/Course: Machine Learning

Date: 19.08.2023

Max. Marks: 75
Time: 10:00-13:00
Duration: 03:00 Hrs

RE-EXAMINATION

Instructions: Candidates should read carefully the instructions printed on the question paper and on the cover page of the Answer Book, which is provided for their use.

- (1) This question paper contains pages.
- (2) All Questions are Compulsory.
- (3) All questions carry equal marks.
- (4) Answer to each new question is to be started on a fresh page.
- (5) Figures in the brackets on the right indicate full marks.
- (6) Assume suitable data wherever required, but justify it.
- (7) Draw the neat labelled diagrams, wherever necessary.

Question No.	. 5	5 145		n 11 .			201101	Max. Marks	
Q1 (a)	What is K Nearest Neighbors Algorithm? What are the things, which should be kept in our mind while choosing the value of k in the KNN Algorithm? What are the real-life applications of KNN Algorithms? OR							[08]	
	Explain different kernels' in SVM? Explain How to choose the right Kernel?								
Q1 (b)	Explain different types of Machine Learning with real time examples							[07]	
Q2 (a)	A man ei the Mark 1(car) 2(bus) 3(train)	ther use ov chair 1(car) 0.1 0.6 0.3	s his car n with 3 2(bus) 0.5 0.2	or takes states is g 3(train) 0.4 0.2 0.3	given below	in to work	each day .The TPM of Transition Probability matrix bability that on second	[10]	
	day, a man use car to go to work. OR For data set given below. Calculate the first predicted line using linear regression. Why multiple linear regression is required. X 1 2 3 4 5 Y 3 4 2 4 5								
	Υ	3	4	2	4	5			

Q2 (b)	Compare regression and classification.	[05]				
Q3 (a)	Describe how Principal Component Analysis is carried out to reduce the dimensionality of data set. Explain steps in detail. Consider the two dimensional patterns (2, 1), (3, 5), (4, 3), (5, 6), (6, 7), (7, 8).					
	Compute the co variance matrix for finding principal component using PCA Algorithm.					
	OR What is Independent Component Analysis? How it is different from PCA.	[10]				
Q3 (b)	Define the terms:- Hyper plane, Margin, Support vectors	[05]				
Q4 (a)	Explain Expectation Maximization Algorithm in detail. Discuss usage, advantage and disadvantage of EM algorithm. OR	[10]				
	Explain hierarchical clustering? Explain different approaches for Hierarchical Clustering in Machine Learning.					
Q4 (b)	Explain Singular value decomposition in detail.	[05]				
Q5 (a)	What are the elements of reinforcement learning?	[07]				
-	OR					
-	Compare wide and deep neural network. When to use deep learning over other techniques?	[07]				
Q5 (b)	Discuss Machine learning for video surveillance.	[07] [08]				

All the Best!