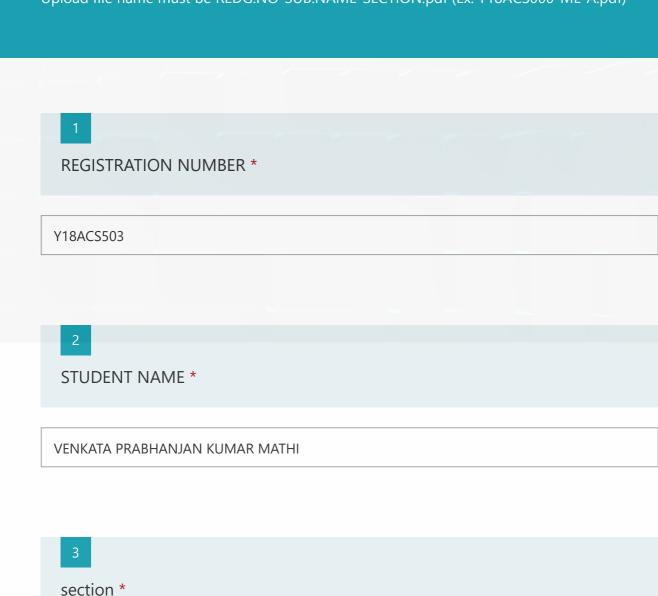
MID2-ML-2020-21-SEM2-3CSE-A,B & C-18CS601-14-06-21-

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SUBJECT NAME *

MACHINE LEARNING



Department of Computer Science and Engineering BAPATLA ENGINEERING COLLEGE, BAPATLA (AUTONOMOUS)
Second Term Examination (6th Semester)

Class: III/IV B.Tech(CSE) Sec -'A','B' & 'C' Subject: MACHINE LEARNING / 18CS601

Max.Marks: 25M. Time: 90Mins. Date: 14-06-21

wer question-1 compulsorily, Answer 1 question from each unit Answer all the following questions.

5 X 1 = 5 M

2. Model a complete Bayes classifier and classify the attribute vector in the last row. $$10\,{\rm M}$$

Age	Income	Student	CR	Buys
Young	High	No	Fair	No
Young	High	No	Good	No
Middle	High	No	Fair	Yes
Elder	Medium	No	Fair	Yes
Elder	Low	Yes	Fair	Yes
Elder	Low	Yes	Good	No
Middle	Low	Yes	Good	Yes
Young	Medium	No	Fair	No
Young	Low	Yes	Fair	Yes
Elder	Medium	Yes	Fair	Yes
Young	Medium	Yes	Good	Yes
Middle	Medium	No	Good	Yes
Middle	High	Yes	Fair	Yes
Elder	Medium	No	Good	No
Middle	Low	No	Fair	?



Enter your answer

4.
a. Derive an expression for the sample complexity of PAC-learnability for finite hypotheses space. 3 M
b. Write the K-NN classification algorithm. 2 M

c. Classify the test sample Z=(5.8,3.9,4,1.2) using the K=NN classifier and the following dataset. SM

Sepal Length	Sepal Width	Petal Length	Petal width	Iris Class
5.5	4.2	1.4	0.2	Iris-setosa
4.9	3.1	1.5	0.1	Iris-setosa
6.7	2.5	5.8	1.8	Iris-virginica
5.8	2.7	3.9	1.2	Iris-versicolor
6	2.7	5.1	1.6	Iris-versicolor
5.9	3.2	4.8	1.8	Iris-versicolor
5	3.6	1.4	0.2	Iris-setosa
4.8	3.4	1.9	0.2	Iris-setosa
4.9	2.5	4.5	1.7	Iris-virginica
6.8	3.2	5.9	2.3	Iris-virginica

a. Write the k-means clustering algorithm. 3 M b. Apply Clustering algorithm for the following dataset and perform two Take the initial centroids $\mu_1=(3,0.25),\mu_2=(2.5,1.5),\mu_3=(3.2.5)$, 7M

Length	Width
4.2	0.2
3.1	0.1
2.5	1.8
2.5 2.7 2.7 3.2	1.2
2.7	1.6
3.2	1.8
3.6 3.4 2.5 3.2	0.2
3.4	0.2
2.5	1.7
3.2	2.3
3	1.5
3.3	2.3 1.5 2.5
2.8	1.5
2.7	1.4
4.1	0.1
2.7 4.1 3.1	0.1
2.6	2.3
3.4	2.3
3.7	0.2
2.0	4.0

Enter your answer



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