VR17 Reg. No: | | | | | | | | | | |

VELAGAPUDI RAMAKRISHNA

SIDDHARTHA ENGINEERING COLLEGE

(AUTONOMOUS)

III/IV B.Tech. DEGREE EXAMINATION, OCTOBER, 2020

Sixth Semester

INFORMATION TECHNOLOGY

17IT3601 MACHINE LEARNING

Time: 3hours ***Max. Marks: 70***

Part-A is compulsory

Answer One Question from each Unit of Part-B

Answer to any single question or its part shall be written at one place only

PART-A

10 x 1 = 10M

1. a. List one problem that could be solved with machine learning.
   b. Define Baye's theorem.
   c. List out a problem, which can be best solved by Naïve Baye's classifier.
   d. Define hypothesis space.
   e. List one major difference between classification and regression.
   f. Write one major difference between supervised and unsupervised learning.
   g. How support vectors will be chosen in SVM?
   h. Mcculloch-pitt neuron is same as perceptron?
   i. Are KNN and K-Means belongs to same category of machine learning?
   j. List out evolutionary computing methodologies.

PART-B

4 x 15 = 60M

UNIT-I

2. a. Elaborately discuss any two machine learning models. **8M**

   b. Discuss about Gibb's theorem with one example. **7M**

(or)

3. a. Explain about binary classification problem, with an example. **7M**

   b. Discuss in detail about Naive Baye's classifier. **8M**

UNIT-II

4. A dataset collected in a cosmetics shop showing details of customers and whether or not they responded to a special offer to buy a new lip-stick is shown in table below. Use this dataset to build a decision tree, with Buys as the target variable, to help in buying lip-sticks in the future. **15M**

ID	Age	Income	Gender	Marital Status	Buys
1	< 21	High	Male	Single	No
2	< 21	High	Male	Married	No
3	21-35	High	Male	Single	Yes
4	>35	Medium	Male	Single	Yes
5	>35	Low	Female	Single	Yes
6	>35	Low	Female	Married	No
7	21-35	Low	Female	Married	Yes
8	< 21	Medium	Male	Single	No
9	<21	Low	Female	Married	Yes
10	> 35	Medium	Female	Single	Yes
11	< 21	Medium	Female	Married	Yes
12	21-35	Medium	Male	Married	Yes
13	21-35	High	Female	Single	Yes
14	> 35	Medium	Male	Married	No

(or)

5. a. Elaborate on various multi class classification algorithms. **7M**

   b. Discuss about descriptive learning. **8M**

UNIT-III

6. a. Explain about various SVM Kernels. **8M**

   b. Elaborate on multivariate linear regression with an example. **7M**

(or)

7. a. What is clustering? Discuss about k-means clustering algorithm. **8M**

   b. Discuss about KNN algorithm with an example. **7M**

UNIT-IV

8. a. Discuss in detail about Backpropagation algorithm. **10M**

   b. How neural networks are useful for doing supervised learning? **5M**

(or)

9. a. Develop an algorithm for stacking the blocks into a single stack that spells the word "universal". **8M**

   b. Discuss in detail about crossover techniques in genetic algorithm. **7M**

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