b. How to construct multilayer networks? Explain it in detail. 8M

(or)

9. a. Write an algorithm for Backpropagation. Describe how this algorithm is useful in face recognition? 9M

b. Explain in detail about Genetic Programming. 6M

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

VELAGAPUDI RAMAKRISHNA

SIDDHARTHA ENGINEERING COLLEGE

(AUTONOMOUS)

III/IV B.Tech. DEGREE EXAMINATION, AUGUST, 2021

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. Mention about different machine learning models.

b. What is class probability estimation?

c. Write a short notes on Bayes theorem.

d. List few applications of machine learning in industry.

e. Whether regression is supervised or unsupervised learning model?

f. What is hypothesis space?

g. What are support vectors?

h. What is ridge regression?

i. Write about artificial neural networks.

j. Give tree representation for any example function by applying genetic programming.

PART-B

4 x 15 = 60M

UNIT-I

2. a. Write in detail about ingredients of machine learning using relevant examples. **7M**

   b. Consider a medical diagnosis problem in which there are two alternative hypotheses: **8M**

   i) that the patient has a particular form of cancer

   ii) that the patient does not

   The available data is from a particular laboratory test with two possible outcomes: positive and negative. We have prior knowledge that over the entire population of people only 0.008 have this disease. Further more, the lab test is only an imperfect indicator of the disease. The test returns a correct positive result in only 98% of the cases in which the disease is actually present and a correct negative result in only 97% of the cases in which the disease is not present. In other cases, the test returns the opposite result. Illustrate this scenario using Bayes theorem and explain it.

(or)

3. a. Explain about geometric, probabilistic and logical models with an example on each. **9M**

   b. Explain about assessing and visualising of classification performance using an example. **6M**

UNIT-II

4. a. Explain in detail about multi class classification. **7M**

   b. Explain in detail about predictive and descriptive clustering. **8M**

(or)

5. a. Explain about multi class scores and probabilities in detail. **7M**

   b. What is a feature tree? Write an algorithm to create a feature tree from training data and explain. **8M**

UNIT-III

6. a. Explain about univariate linear regression and effects of outlier on it by using relevant example. **7M**

   b. Write an algorithm for k-means clustering using Euclidean distance and explain in detail with an example. **8M**

(or)

7. a. Explain in detail bout regularized regression. **7M**

   b. Explain in detail about Minkowski distance and Elliptical distance. **8M**

UNIT-IV

8. a. Explain in detail about biological motivation for artificial neural networks. **7M**