

| **ST. JOSEPH’S UNIVERSITY, BENGALURU-27** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **MSc COMPUTER SCIENCE -II SEMESTER** | | | | | |
| **END SEMESTER EXAMINATION :APRIL 2023**  **(**Examination Conducted in MAY 2023)  **CS8221-MACHINE LEARNING USING PYTHON**  **(For current batch students only)** | | | | | |
|  | | | | | |
|  |  |  |  |  |  |
| **Time- 2 hrs** | |  | **Max Marks-50** | | |

**PART A**

**Answer all of the following (2x5=10)**

1. Discus the various stages involved in designing a learning system.
2. Differentiate between Training data and Testing Data.
3. Define entropy.
4. Explain the term Gradient Descent.
5. Discuss the use of support vectors in SVM.

**PART B**

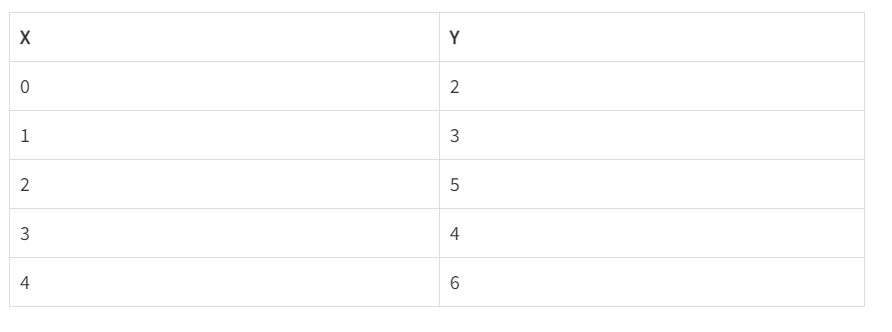
**Answer any Five of the following (4\*5=20)**

1. Describe feature selection. Differentiate the two methods used for feature selection.
2. Explain agglomerative clustering. Compare and contrast the different measures used to calculate the distance between clusters.
3. Explain the concept of Bayes theorem with an example
4. Explain the algorithm for Back propagation.
5. What are hidden Markov models used for? What is the difference between Markov and hidden Markov model?
6. Elaborate the following in pandas
7. Series (2marks)
8. Panel (2 marks)
9. Write a python program to implement SVM using scikit package.

**PART C**

**Answer any Two of the following questions (2\*10=20)**

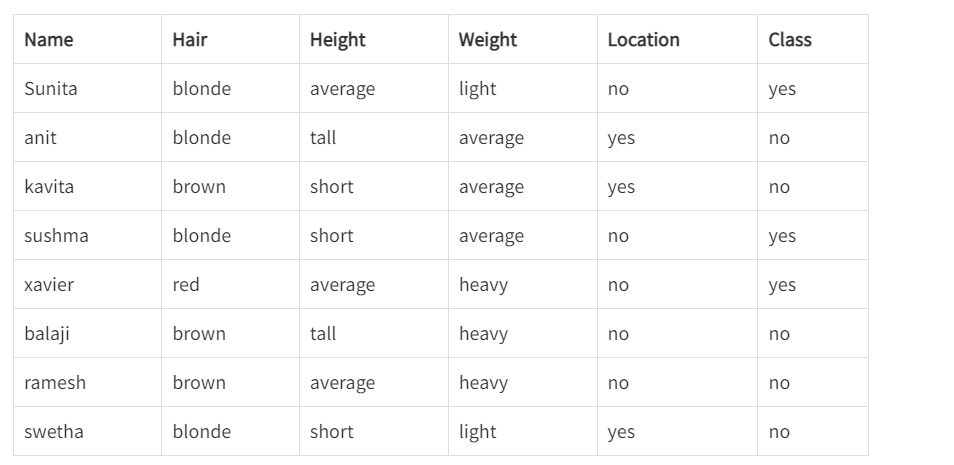
1. a) The values of independent variable x and dependent value y are given below:

Find the least square regression line y=ax+b. Estimate the value of y when x is 10. (7 marks)

b) Identify the major requirements of clustering algorithms. (3 marks)

1. a) Explain the concept information gain. (2 marks)

b)For a SunBurn dataset given below, construct a decision tree.



(8 marks)

1. a) Discuss the goal of the support vector machine (SVM). How to compute the margin? (6marks)

b) Identify the elements of reinforcement learning. (4 marks)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*