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VI Semester B.C.A. Degree Examination, August/September - 2023

**COMPUTER SCIENCE****Machine Learning****(CBCS Scheme)****Time : 3 Hours****Maximum Marks :100****Instructions to Candidates:**

Answer All the Sections.

**SECTION - A**

Answer any TEN questions. Each question carries 2 marks.

**(10×2=20)**

1. What is meant by supervised algorithms?
2. List any two machine learning algorithms solving classification problem.
3. What are commonly used dimensionality reduction technique in ML?
4. What is an inductive bias in machine learning?
5. Define :
  - a) Precision
  - b) Recall.
6. What is polynomial regression?
7. Define entropy of a data set.
8. What do you mean by artificial neuron?
9. What is Kernel function? Give an example.
10. What is the Markov property of a discrete Markov process?
11. Is clustering supervised learning? If so why?
12. What are genetic algorithms?

**[P.T.O.]**



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**SECTION - B**

**Answer any FIVE questions. Each question carries 5 marks.**

**(5×5=25)**

13. List any five applications of machine learning.
14. Define version space and illustrate with example.
15. Explain the process of subset selection by using forward selection method.
16. Explain different types of cross validation.
17. Explain Naive Bayes algorithm.
18. Write a note on linear regression.
19. Explain ID3 Algorithm.
20. Explain about genetic operators with example.

**SECTION - C**

**Answer any THREE questions. Each question carries 15 marks.**

**(3×15=45)**

21. Describe an example of PAC learnable concept class.
22. Given the following data, compute the principal component vectors and the first principal component.

X	2	3	7
Y	11	14	26

23. Illustrate the concept of support vector machine.
24. Describe the characteristics of Artificial neural Networks.
25. Write a note on association mining and List its applications.

**SECTION - D**

**Answer any ONE question. This question carries 10 marks.**

**(1×10=10)**

26. Write a note on components of learning system in ML.
  27. Describe VC Dimension.
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