

**Note:**

- Question number Q1 is compulsory
- Attempt any two questions out of Q2 to Q5

Mark s	Course Outco me CO	Bloo m's Level BL
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**Q1**

- |    |  |      |     |     |
|----|--|------|-----|-----|
| a. | Explain PEAS with suitable example.    | [05] | CO1 | 1,2 |
| b. | Describe Multilayer Perceptron         | [05] | CO3 | 1,2 |
| c. | Explain Confusion matrix with example. | [05] | CO4 | 1,2 |
| d. | Discuss Cross Validation in detail     | [05] | CO6 | 1,2 |

**Q2**

- |    |   |      |     |   |
|----|---|------|-----|---|
| a. | Explain First Order Logic with suitable example and Differentiate it with Propositional Logic | [08] | CO1 | 2 |
| b. | Explain Bagging and Boosting with suitable example.   | [07] | CO6 | 2 |

**Q3**

- |    |   |      |     |   |
|----|---|------|-----|---|
| a. | Describe A* algorithms in detail with suitable example            | [08] | CO2 | 2 |
| b. | Describe Bayesian Belief network in detail with suitable example. | [07] | CO5 | 2 |

**Q4**

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|----|---|------|-----|-----|
| a. | What do you Understand by feature Selection? Explain univariate and multivariate feature selection approach in brief. | [08] | CO4 | 2,4 |
| b. | Explain Uninformed search technique in detail.  | [07] | CO2 | 2   |

**Q5**

- |    |  |      |     |     |
|----|--|------|-----|-----|
| a. | Describe the Non-separable case of SVM in brief. Implement AND function using Perceptron network for following bipolar inputs and targets till one Epoch. (Assume initial weights and threshold zero and learning rate $\alpha=1$ and net input function as follows) | [08] | CO5 | 2,4 |
|----|--|------|-----|-----|

b.

$$f(y_{in}) = \begin{cases} 1 & \text{if } y_{in} > 0 \\ 0 & \text{if } y_{in} = 0 \\ -1 & \text{if } y_{in} < 0 \end{cases}$$

X1	X2	T
1	1	1
1	-1	-1
-1	1	-1
-1	-1	-1

Input table

[07] CO3 2,3,4