

Module 1																																																	
1	a	Define Machine Learning. Explain its relationship to other fields with diagram	10	L1																																													
	b	Explain different types of machine learning with a diagram	10	L2																																													
OR																																																	
2	a	Define data. Explain 6V's of Big Data	10	L1																																													
	b	Explain data preprocessing with an example	10	L2																																													
Module 2																																																	
3	a	Apply and explain principal component analysis algorithm for the given data points and prove that PCA works. $\begin{pmatrix} 2 \\ 6 \end{pmatrix} \begin{pmatrix} 1 \\ 7 \end{pmatrix}$	12	L3																																													
	b	Explain continuous and discrete probability distributions	08	L2																																													
OR																																																	
4	a	Design a learning system for chess game	10	L3																																													
	b	Explain and apply candidate elimination algorithm for the given dataset <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Example</th> <th>Sky</th> <th>Temp</th> <th>Humidity</th> <th>Wind</th> <th>Water</th> <th>Forecast</th> <th>Enjoy Sports</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Sunny</td> <td>Warm</td> <td>Normal</td> <td>Strong</td> <td>Warm</td> <td>Same</td> <td>Yes</td> </tr> <tr> <td>2</td> <td>Sunny</td> <td>Warm</td> <td>High</td> <td>Strong</td> <td>Warm</td> <td>Same</td> <td>Yes</td> </tr> <tr> <td>3</td> <td>Rainy</td> <td>Cold</td> <td>High</td> <td>Strong</td> <td>Warm</td> <td>Change</td> <td>No</td> </tr> <tr> <td>4</td> <td>Sunny</td> <td>Warm</td> <td>High</td> <td>Strong</td> <td>Cool</td> <td>Change</td> <td>Yes</td> </tr> </tbody> </table>	Example	Sky	Temp	Humidity	Wind	Water	Forecast	Enjoy Sports	1	Sunny	Warm	Normal	Strong	Warm	Same	Yes	2	Sunny	Warm	High	Strong	Warm	Same	Yes	3	Rainy	Cold	High	Strong	Warm	Change	No	4	Sunny	Warm	High	Strong	Cool	Change	Yes	10	L2					
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Module 3																																																	
5	a	Distinguish between i. Locally weighted regression and Linear regression ii. Multiple linear regression and Logistic regression	10	L4																																													
	b	Apply weighted KNN algorithm using the given dataset to classify the test set data (7.6, 60,8) where k=3 <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>S.No.</th> <th>CGPA</th> <th>Assessment</th> <th>Project Submitted</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>9.2</td> <td>85</td> <td>8</td> <td>Pass</td> </tr> <tr> <td>2.</td> <td>8</td> <td>80</td> <td>7</td> <td>Pass</td> </tr> <tr> <td>3.</td> <td>8.5</td> <td>81</td> <td>8</td> <td>Pass</td> </tr> <tr> <td>4.</td> <td>6</td> <td>45</td> <td>5</td> <td>Fail</td> </tr> <tr> <td>5.</td> <td>6.5</td> <td>50</td> <td>4</td> <td>Fail</td> </tr> <tr> <td>6.</td> <td>8.2</td> <td>72</td> <td>7</td> <td>Pass</td> </tr> <tr> <td>7.</td> <td>5.8</td> <td>38</td> <td>5</td> <td>Fail</td> </tr> <tr> <td>8.</td> <td>8.9</td> <td>91</td> <td>9</td> <td>Pass</td> </tr> </tbody> </table>	S.No.	CGPA	Assessment	Project Submitted	Result	1.	9.2	85	8	Pass	2.	8	80	7	Pass	3.	8.5	81	8	Pass	4.	6	45	5	Fail	5.	6.5	50	4	Fail	6.	8.2	72	7	Pass	7.	5.8	38	5	Fail	8.	8.9	91	9	Pass	10	L3
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6	a	Make use of entropy and information gain to discover the root node for the decision tree for the following dataset using ID3 algorithm.	14	L3																																													

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	b	Analyze decision tree learning with its structure, advantages, and disadvantages.	06	L4																																																																		
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7	a	Define prior probabaility.Explain Bayes theorem, h _M L and h _M AP with an example	08	L1																																																																		
	b	Analyze the student performance using Navie Bayes algorithm for continuous attribute. Predict whether student will get job offer or not in the final year.	12	L4																																																																		
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8	a	Analyze different types of artificial neural network with diagram	10	L4																																																																		
	b	Define activation function. Explain different types of activation function.	10	L1																																																																		
Module 5																																																																						
9	a	Analyze Grid based approach and mention the steps of CLIQUE	10	L4																																																																		
	b	Apply k means clustering algorithm for the given data with initial value of objects 2 and 5 considered as initial seeds.	10	L3																																																																		
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10	a	Determine characteristics, application and challenges of reinforcement learning	10	L3																																																																		
	b	Analyze components of reinforcement learning with a diagram	10	L4																																																																		