USN										

21CST603

B. E. Degree (Autonomous) Fifth Semester End Examination (SEE), JUL/AUG 2024

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

(Model Question Paper –II)

Time: 3 Hours] **[Maximum Marks: 100]**

Note: Answer ANY ONE from Question No. 1 and 2
Answer ANY ONE from Question No. 3 and 4
Answer ANY ONE from Question No. 5 and 6
Answer ANY ONE from Question No. 7 and 8
Answer ANY ONE from Question No. 9 nd 10

Q.NO		Answer Any Five Full Questions	MARKS	CO'S	BLOOMS LEVEL
1	a)	Define AI. Explain Briefly foundation and the State of Art of AI.	10 Marks	CO 1	L 1,2
	b)	Define Agent. List and Explain with an neat diagram different types of agent.	10 Marks	CO 1	L 1,2
		OR			
2	a)	Explain the following searching Techniques with an example : i) BFS ii) DFS	10Marks	CO 1	L 1,2
	b)	Explain the definition of Task environment with an example.	10Marks	CO 1	L 1,2
3	a)	List and Explain briefly with an example Informed Searching Algorithms.	12Marks	CO2	L 1,2
	b)	Define Machine Learning. List and explain the different types of Machine Learning.	08 Marks	CO2	L2
		OR			
4	a)	Explain life cycle of Machine Learning.	04 Marks	CO2	L2
	b)	Consider the set: **V = {88, 90, 92, 94}**. Apply Min-Max	10 Marks	CO 2	L2

<table>
<tr><td></td><td></td><td>procedure and map the marks to new range 0-1.</td><td></td><td></td><td></td></tr>
<tr><td></td><td>c)</td><td>Consider the following set: S = {4, 8, 15 , 21 , 21, 24, 25,28 , 34}. Apply various binning techniques and show the result.</td><td>06 Marks</td><td>CO 2</td><td>L4</td></tr>
<tr><td>5</td><td>a)</td><td>
<table>
<tr><th>Sky</th><th>Temperature</th><th>Humid</th><th>Wind</th><th>Water</th><th>Forest</th><th>Output</th></tr>
<tr><td>sunny</td><td>warm</td><td>normal</td><td>strong</td><td>warm</td><td>same</td><td>yes</td></tr>
<tr><td>sunny</td><td>warm</td><td>high</td><td>strong</td><td>warm</td><td>same</td><td>yes</td></tr>
<tr><td>rainy</td><td>cold</td><td>high</td><td>strong</td><td>warm</td><td>change</td><td>no</td></tr>
<tr><td>sunny</td><td>warm</td><td>high</td><td>strong</td><td>cool</td><td>change</td><td>yes</td></tr>
</table>
Illutsrate the concept theory ,hypothesis ,version space for the above dataset.
</td><td>10 Marks</td><td>CO 3</td><td>L3</td></tr>
<tr><td></td><td>b)</td><td>Explain Candidate Elimination Algorithm with an example.</td><td>10Marks</td><td>CO 3</td><td>L2</td></tr>
<tr><td colspan="6">OR</td></tr>
<tr><td>6</td><td>a)</td><td>Consider the student performance training dataset of 8 data instance in given below table, which describes the performance of individual students in a course and their CGP Aobtained in previous semesters . The independent attributes are CGPA ,Assement and Project.the target variable is’Result’. Based on the performance of a student, classify whether a student will pass or fail in that course.
<table>
<tr><th>S.No</th><th>CGPA</th><th>Assesment</th><th>Project Submitted</th><th>Result</th></tr>
<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>
</table>
</td><td>10Marks</td><td>CO 3</td><td>L4</td></tr>
<tr><td></td><td>b)</td><td>Consider the sample data shown in table with two features x and y. the target classes are ‘A’ or ‘B’ .predict the class using NCC.
<table>
<tr><th>x</th><th>y</th><th>class</th></tr>
<tr><td>3</td><td>1</td><td>A</td></tr>
<tr><td>5</td><td>2</td><td>A</td></tr>
</table>
</td><td>10Marks</td><td>CO 3</td><td>L4</td></tr>
</table>

			4	**3**	**A**			
			7	**6**	**B**			
			6	**7**	**B**			
			8	**5**	**B**			
7	**a)**	Explain the method of constructing Regression trees				**10**	**CO4**	**L2**
	b)	Explain ID3 algorithm with an example				**10**	**CO4**	**L2**
		OR						
8	**a)**	Write a procedure to construct Decision Tree Using C4.5				**10**	**CO4**	**L2**
	b)	Illustrate the procedure for the classification using Bayes model				**10**	**CO4**	**L2**
9	**a)**	Explain the following terminologies in ANN : i) Weights ii) Bias				**10**	**CO5**	**L2**
	b)	Illustrate the flow chart of Hebb Training algorithm				**10**	**CO5**	**L2**
		OR						
10	**a)**	Define Artificial Neural Network ?What are the appropriate problems for Neural Network				**10**	**CO5**	**L2**
	b)	Explain back propagation algorithm with an example				**10**	**CO5**	**L2**