



SCHOOL OF COMPUTER SCIENCE ENGINEERING AND INFORMATION SYSTEMS
CONTINUOUS ASSESSMENT

SLOT:A1+TA1

Programme Name & Branch	: B.Tech I.T
Course Code and Course Name	: BITE410L-Machine Learning
Faculty Name(s)	: Dr.RamKumar T, Dr.Usha Devi G, Dr.P.Prabhavathy
Class Number(s)	: VL2024250503062, VL2024250503065, : VL2024250503068
Date of Examination	: 27-01-2025
Exam Duration	: 90 minutes
General Instructions	Maximum Marks: 50

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General instruction(s):

Answer All Questions

- CO1: Understand the various machine learning approaches and data preprocessing techniques.
- CO2: Develop the learning models for the problems using supervised and advanced supervised learning-Based approaches.

Q. No	Question	M	CO	BL																																				
1.	Elaborate the typical use cases of supervised learning and provide real time examples.	10	CO1	BL2																																				
2.	Discuss the various types of feature selection techniques along with examples. List out the pros and cons of each technique.	10	CO1	BL2																																				
3.	Describe the role of the sample complexity involved in PAC learning. How is it related to the accuracy and confidence parameters (ϵ and δ)? Apply these parameters in the context of supervised machine learning.	10	CO2	BL3																																				
4.	Suppose a hospital tested the age and HB-level data for 16 randomly selected adults with the following result <table><tr><td>age</td><td>33</td><td>40</td><td>50</td><td>27</td><td>66</td><td>44</td><td>28</td><td>49</td></tr><tr><td>HB-level</td><td>9.5</td><td>11.5</td><td>8.0</td><td>10.1</td><td>7.6</td><td>8.8</td><td>9.2</td><td>7.7</td></tr><tr><td>age</td><td>70</td><td>36</td><td>45</td><td>30</td><td>29</td><td>33</td><td>23</td><td>70</td></tr><tr><td>HB-level</td><td>7.0</td><td>11.7</td><td>8.7</td><td>9.4</td><td>12.3</td><td>11.1</td><td>12.0</td><td>6.6</td></tr></table> Calculate the correlation coefficient (Pearson's product moment coefficient). Are these two variables positively or negatively correlated?	age	33	40	50	27	66	44	28	49	HB-level	9.5	11.5	8.0	10.1	7.6	8.8	9.2	7.7	age	70	36	45	30	29	33	23	70	HB-level	7.0	11.7	8.7	9.4	12.3	11.1	12.0	6.6	10	CO1	BL2
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5.	Consider the two-dimensional patterns (4,2), (3,1), (2,3), (5,1). Compute the principal components using PCA Algorithm.	10	CO1	BL3																																				
