**18ECD32**

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| **IV/IV B.Tech (Regular) DEGREE EXAMINATION** | | | |
| **January, 2022** | **Electronics & Communication Engineering** | | |
| **Seventh Semester** | **Machine Learning** | | |
| **Time:** Three Hours | | **Maximum: 5**0 Marks | |
| *Answer Question No. 1 Compulsorily.* | | | (1X10 = 10 Marks) |
| *Answer* ***ANY ONE*** *question from each Unit.* | | | (4X10=40 Marks) |

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| 1. | a) | List out any four applications of machine learning. | | CO1 | |  |
|  | b) | What are the Well-Posed Machine Learning Problems. | | CO1 | |  |
|  | c) | Define Heuristic Search in Inductive Learning | | CO1 | |  |
|  | d) | Explain about k-Nearest Neighbor (k-NN) Classifier | | CO2 | |  |
|  | e) | Define Occam’s Razor Principle | | CO2 | |  |
|  | f) | What are the Metrics for Assessing Classification | | CO2 | |  |
|  | g) | What is Partitional Clustering | | CO3 | |  |
|  | h) | Name the functionalities of Linear Soft Margin Classifier | | CO3 | |  |
|  | i) | Give an example of Classification Decision Tree | | CO4 | |  |
|  | j) | Define Data Clustering and Data Transformations | | CO4 | |  |
| **UNIT - I** | | | | | | |
| 2. | a) | Explain Domain Knowledge for Productive use of Machine Learning | | CO1 | **5M** | |
|  | b) | Differentiate between supervised and unsupervised training. Explain with suitable examples. | | CO1 | **5M** | |
|  |  | **(OR)** | |  |  | |
| 3. | a) | Disscuss about Heuristic Search in Inductive Learning | | CO1 | **5M** | |
|  | b) | How to Estimate Generalization Errors | | CO1 | **5M** | |
| **UNIT - II** | | | | | | |
| 4. | a) | Explain about Statistical Learning | | CO2 | **5M** | |
|  | b) | What are the Descriptive Statistics in Learning Techniques and explain | | CO2 | **5M** | |
|  |  | **(OR)** | |  |  | |
| 5. | a) | Define k-Nearest Neighbor (k-NN) Classifier give example | | CO2 | **5M** | |
|  | b) | Differentiate Discriminant Functions and Regression Functions | | CO2 | **5M** | |
| **UNIT - III** | | | | | | |
| 6. | a) | Illustrate Learning With Support Vector Machines (SVM) | | CO3 | **6M** | |
|  | b) | Define Perceptron Algorithm and give example with neat diagram | | CO3 | **4M** | |
|  |  | **(OR)** | |  |  | |
| 7. | a) | What is classification and explain One-Against-All (OAA), One-Against-One (OAO) | | CO3 | **5M** | |
|  | b) | Explain about Linear Maximal Margin Classifier for Linearly Separable Data | | CO3 | **5M** | |
| **UNIT - IV** | | | | | | |
| 8. | a) | Find What is Clustering and Explain Data Transformation | | CO4 | **5M** | |
|  | b) | C Discuss about Cluttering using Self-Organizing Maps | | CO4 | **5M** | |
|  |  | **(OR)** | |  |  | |
| 9. | a) | Elaborate ExpectationMaximization (EM) Algorithm | | CO4 | **5M** | |
|  | b) | Principal Components Analysis (PCA) for Attribute Reduction | | CO4 | **5M** | |

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