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| **Register No.** |  |  |  |  |  |  |  |  |  |  |

**FACULTY OF ENGINEERING & TECHNOLOGY, SRM UNIVERSITY**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**Cycle Test – I/Evaluation form**

**Academic Year: 2017-2018**

**Program offered: B.Tech Year / Semester: III/V**

**Max. Marks: 50 Duration: 2 Periods Date of Exam: 30/08/2017**

**Course Code and Title: 15CS324E- MACHINE LEARNING**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **PURPOSE** | | This Course will enable the students to study various aspects of Machine Learning and its applications useful in modern data processing | | | | | | | |
| **INSTRUCTIONAL OBJECTIVES** | | | **STUDENTOUTCOMES** | | | | | | |
| At the end of the course, student will be able | | |  |  |  |  |  |  |  |
| 1. | Understand the concepts of machine learning | | a |  |  |  |  |  |  |
| 2. | Understand the clustering techniques and their utilization in machine learning | | a | b |  |  |  |  |  |
| 3. | Study the neural network systems for machine learning | | a |  |  |  |  |  |  |
| 4. | Learn and understand the linear learning models in machine learning | | a |  |  |  |  |  |  |
| 5. | Study the tree based machine learning techniques and to appreciate their capability | | a |  |  |  |  |  |  |

The student outcomes are:

1. An ability to apply knowledge of mathematics, science, and engineering

(b) An ability to design and conduct experiments, as well as to analyze and interpret data.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Question**  **No.** | **Reference**  **to**  **IO** | **Reference**  **to**  **Outcome** | **Marks**  **Allotted**  **(Total 50)** | **Marks**  **Scored** | **Outcomes**  **Met**  **Yes / No** |
| 1. | 1 | a | 4 |  |  |
| 2. | 2 | b | 4 |  |  |
| 3. | 2 | b | 4 |  |  |
| 4. | 1 | a | 4 |  |  |
| 5. | 2 | b | 4 |  |  |
| 6. | 1 | b | 15 |  |  |
| 7. | 1 | a | 15 |  |  |
| 8. | 2 | b | 15 |  |  |
| TOTAL | | | |  |  |

**Faculty Name:**

**Signature:**

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**FACULTY OF ENGINEERING & TECHNOLOGY, SRM UNIVERSITY**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**Cycle Test – I/Question paper**

**Academic Year: 2017-20118**

**Program offered: B.Tech Year / Semester: III/V**

**Max. Marks: 50 Duration: 2 Periods Date of Exam: 30-08-2017**

**Course Code and Title: 15CS324E- MACHINE LEARNING**

**Batch 2-SET – B1**

**PART A** Answer **ALL** questions **5\*4=20 Marks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl.No** | **Question** | **Course Outcome** | **Bloom’s Taxonomy** | **Marks** |
| 1 | State various machine learning methods with examples | a | Knowledge | 4 |
| 2 | Explain curse of dimensionality | b | Analysis | 4 |
| 3 | Define Bias and Variance with an example. | b | Comprehension | 4 |
| 4 | Define Laplacian matrix with an example | a | Knowledge | 4 |
| 5 | Explain various clustering techniques | a | Knowledge | 4 |

**PART B** Answer any **TWO** questions **2\*15=30 Marks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl.No** | **Question** | **Course Outcome** | **Bloom’s Taxonomy** | **Marks** |
| 6 | Apply k-means algorithm, with k=2 for the following data set consisting of the scores of two variables on each of seven individuals: with initial clusters (1.0,1.0),(5.0,7.0)   |  |  |  | | --- | --- | --- | | Subject | A | B | | 1 | 1.0 | 1.0 | | 2 | 1.5 | 2.0 | | 3 | 3.0 | 4.0 | | 4 | 5.0 | 7.0 | | 5 | 3.5 | 5.0 | | 6 | 4.5 | 5.0 | | 7 | 3.5 | 4.5 | | b | Application | 15 |
| 7 | 1. What is machine learning 2. State Block diagram of Machine learning model 3. State the difference between Regression and Classification with suitable example | a | Knowledge | 2  5  8 |
| 8 | Illustrate the difference between single linkage and complete linkage in hierarchical clustering with suitable example | b | Comprehension | 15 |

|  |  |  |  |  |  |  |  |  |  |  |
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| **Register No.** |  |  |  |  |  |  |  |  |  |  |

**FACULTY OF ENGINEERING & TECHNOLOGY, SRM UNIVERSITY**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**Cycle Test – I/Evaluation form**

**Academic Year: 2017-2018**

**Program offered: B.Tech Year / Semester: III/V**

**Max. Marks: 50 Duration: 2 Periods Date of Exam: 30/08/2017**

**Course Code and Title: 15CS324E- MACHINE LEARNING**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **PURPOSE** | | This Course will enable the students to study various aspects of Machine Learning and its applications useful in modern data processing | | | | | | | |
| **INSTRUCTIONAL OBJECTIVES** | | | **STUDENTOUTCOMES** | | | | | | |
| At the end of the course, student will be able | | |  |  |  |  |  |  |  |
| 1. | Understand the concepts of machine learning | | a |  |  |  |  |  |  |
| 2. | Understand the clustering techniques and their utilization in machine learning | | a | b |  |  |  |  |  |
| 3. | Study the neural network systems for machine learning | | a |  |  |  |  |  |  |
| 4. | Learn and understand the linear learning models in machine learning | | a |  |  |  |  |  |  |
| 5. | Study the tree based machine learning techniques and to appreciate their capability | | a |  |  |  |  |  |  |

The student outcomes are:

1. An ability to apply knowledge of mathematics, science, and engineering

(b) An ability to design and conduct experiments, as well as to analyze and interpret data.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Question**  **No.** | **Reference**  **to**  **IO** | **Reference**  **to**  **Outcome** | **Marks**  **Allotted**  **(Total 50)** | **Marks**  **Scored** | **Outcomes**  **Met**  **Yes / No** |
| 1. | 1 | a | 4 |  |  |
| 2. | 2 | b | 4 |  |  |
| 3. | 1 | a | 4 |  |  |
| 4. | 2 | b | 4 |  |  |
| 5. | 2 | a | 4 |  |  |
| 6. | 2 | b | 15 |  |  |
| 7. | 1 | a | 15 |  |  |
| 8. | 2 | b | 15 |  |  |
| TOTAL | | | |  |  |

**Faculty Name:**

**Signature:**

|  |  |  |  |  |  |  |  |  |  |  |
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| **Register No.** |  |  |  |  |  |  |  |  |  |  |

**FACULTY OF ENGINEERING & TECHNOLOGY, SRM UNIVERSITY**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**Cycle Test – I/Question paper**

**Academic Year: 2017-20118**

**Program offered: B.Tech Year / Semester: III/V**

**Max. Marks: 50 Duration: 2 Periods Date of Exam: 30-08-2017**

**Course Code and Title: 15CS324E- MACHINE LEARNING**

**Batch 2-SET – B2**

**PART A** Answer **ALL** questions **5\*4=20 Marks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl.No** | **Question** | **Course Outcome** | **Bloom’s Taxonomy** | **Marks** |
| 1 | Why people opt unsupervised learning over supervised learning? | a | Knowledge | 4 |
| 2 | Explain various dissimilarity measures in clustering | a | Knowledge | 4 |
| 3 | Explain curse of dimensionality | a | Knowledge | 4 |
| 4 | Compare Agglomerative clustering and Divisive clustering | b | Analysis | 4 |
| 5 | Write short notes on reinforcement learning | b | Comprehension | 4 |

**PART B** Answer any **TWO** questions **2\*15=30 Marks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl.No** | **Question** | **Course Outcome** | **Bloom’s Taxonomy** | **Marks** |
| 6 | Apply K-Medoids on the given set of data points.  x1(2, 6) x2 (3, 4) x3 (3, 8) x4 (4,7) x5 (6,2)  x6 (6, 4) x7(7,3) x8 (7,4) x9 (8,5) x10(7,6) (one iteration is needed) | b | Application | 15 |
| 7 | Explain   1. Spectral clustering 2. Bias vs. Variance trade off 3. Bottom-Up and Top down clustering |  | Knowledge | 5  5  5 |
| 8 | Explain various machine learning methods with suitable examples | a | Knowledge | 15 |