**POORNIMA UNIVERSITY, JAIPUR**

**END SEMESTER EXAMINATION, April 2023**

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|  | **3BT6133** | Roll No. | Total Printed Pages: 2 |
| **3BT6133** |  |
| B. Tech. III Year VI Semester (Main/Back) End Semester Examination, April 2023  **(AI)** | |
| **BAI06101 : Advanced Machine Learning** | | | |

# Time: **3** Hours. Total Marks: **60**

Min. Passing Marks: **21**

Attempt **five** questions selecting one question from each Unit. There is internal choice from Unit I to Unit V. Marks of each question or its parts are indicated against each question / parts. Draw neat sketches wherever necessary to illustrate the answer. Assume missing data suitably (if any) and clearly indicate the same in the answer.

Use of following supporting material is permitted during examination for this subject.

# **1.--------------------------Nil--------------------** **2.------------------Nil-----------------------**

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|  |  | **UNIT-I (CO1)** | **Marks** | **Bloom Level** |
| **Q.1** | **(a)** | List the difference and similarity between classification and regression. | **(6)** | **L1** |
|  |  |  |  |  |
|  | **(b)** | Explain probability estimation in decision tree. | **(6)** | **L2** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
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| **Q.2** | **(a)** | Describe classification and interpretation with pruned tree. | **(6)** | **L2** |
|  |  |  |  |  |
|  | **(b)** | State the advantages and disadvantages of ensemble tree method. | **(6)** | **L3** |
|  |  |  |  |  |
|  |  | **UNIT-II (CO2)** |  |  |
|  |  |  |  |  |
| **Q.3** | **(a)** | Explain the types of logistic regression. | **(6)** | **L2** |
|  |  |  |  |  |
|  | **(b)** | State the Concepts of Probit and logit analysis. | **(6)** | **L3** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
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| **Q.4** |  | List the properties of logistic regression coefficients. Explain the logistic regression for correlated data. | **(12)** | **L4** |
|  |  |  |  |  |
|  |  | **UNIT-III (CO3)** |  |  |
|  |  |  |  |  |
| **Q.5** | **(a)** | What is a confusion matrix? Explain with example. | **(6)** | **L1, L2** |
|  |  |  |  |  |
|  | **(b)** | Describe the likelihood ratio test (goodness of fit test). | **(6)** | **L3** |
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|  |  | **OR** |  |  |
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| **Q.6** | **(a)** | Explain concepts and interpretation of Pseudo R square tests. | **(6)** | **L2** |
|  |  |  |  |  |
|  | **(b)** | Describe prediction using better fit model and interpretation. | **(6)** | **L4** |
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|  |  | **UNIT-IV (CO4)** |  |  |
|  |  |  |  |  |
| **Q.7** | **(a)** | State the Support Vector Machine (SVM) and Support Vector Regression (SVR). | **(6)** | **L2** |
|  |  |  |  |  |
|  | **(b)** | Explain Maximum margin hyper plane for SVM. | **(6)** | **L3** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
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| **Q.8** | **(a)** | Explain kernel trick, kernel functions for SVR. | **(6)** | **L2** |
|  |  |  |  |  |
|  | **(b)** | Explain kernel prediction and kernel based algorithm for SVM and SVR. | **(6)** | **L3** |
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|  |  | **UNIT V (CO5)** |  |  |
|  |  |  |  |  |
| **Q.9** | **(a)** | What is the role of role of artificial neural network? Explain with example. | **(6)** | **L1, L2** |
|  |  |  |  |  |
|  | **(b)** | List the limitations of single layer perceptron? | **(6)** | **L1** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
|  |  |  |  |  |
| **Q.10** | **(a)** | Explain the back propagation learning procedure. | **(6)** | **L2** |
|  |  |  |  |  |
|  | **(b)** | Explain about number of hidden layers and nodes used in Neural Networks. | **(6)** | **L3** |