**POORNIMA UNIVERSITY, JAIPUR**

**END SEMESTER EXAMINATION, November 2022**

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|  | **4BT7154** | Roll No. | Total Printed Pages: 2 |
| **4BT7154** |  |
| B. Tech. IV Year VII- Semester (Main/Back) End Semester Examination, November 2022  **(DS)** | |
| **BDS07103: 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.

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

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|  |  | **UNIT-I (CO1)** | **Marks** | **Bloom Level** |
| **Q.1** | **(a)** | What do you mean by ensemble tree? Explain advantages and disadvantages of ensemble tree method. | **(6)** | **Understanding** |
|  |  |  |  |  |
|  | **(b)** | Write short notes on:   1. Probability estimation in decision tree 2. evaluation of decision tree classifiers | **(6)** | **Understanding** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
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| **Q.2** | **(a)** | Discuss Classification and interpretation with pruned tree in decision tree induction. | **(6)** | **Remembering** |
|  |  |  |  |  |
|  | **(b)** | Discuss stopping criteria and tree pruning techniques for tree development in decision tree induction. | **(6)** | **Understanding** |
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|  |  | **UNIT-II (CO2)** |  |  |
|  |  |  |  |  |
| **Q.3** | (a) | What do you mean by Probit and Logit Regression? Explain with an example. | **(6)** | **Applying** |
|  |  |  |  |  |
|  | (b) | Explain odd and odd ratio in logistic regression in detail with an example. | **(6)** | **Understanding** |
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|  |  | **OR** |  |  |
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| **Q.4** | (a) | What do you mean by parametric estimation technique used in Binary Logistic Regression? Explain it in detail. | **(6)** | **Applying** |
|  |  |  |  |  |
|  | (b) | Discuss Maximum likelihood estimation with respect to logistic regression, explain in detail. | **(6)** | **Applying** |
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|  |  | **UNIT-III (CO3)** |  |  |
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| **Q.5** | **(a)** | Discuss Concepts and interpretation of Pseudo R square Test used in Machine Learning. | **(6)** | **Applying** |
|  |  |  |  |  |
|  | **(b)** | What is Model Accuracy Testing in Machine Learning? Discuss various techniques involve in it. | **(6)** | **Understanding** |
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|  |  | **OR** |  |  |
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| **Q.6** | **(a)** | Discuss Chi-Square Statistical Models used for Model Fitness for evaluating the performance of a single model with an example. | **(6)** | **Understanding** |
|  |  |  |  |  |
|  | **(b)** | Discuss various Statistical Models for used for Model Fitness for evaluating the performance of a single model. | **(6)** | **Applying** |
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|  |  | **UNIT-IV (CO4)** |  |  |
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| **Q.7** | **(a)** | What is Support Vector Machine in machine Learning? Discuss Hard & Soft margin SVM. | **(6)** | **Understanding** |
|  |  |  |  |  |
|  | **(b)** | Discuss Kernel Trick & Kernel function with an example. | **(6)** | **Remembering** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
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| **Q.8** | **(a)** | How to do classification using Support Vector Machine for linearly separable & linearly inseparable data set, explain with an example? | **(6)** | **Applying** |
|  |  |  |  |  |
|  | **(b)** | How to maximize Margin between two support vectors, Draw and explain an expression for the same. | **(6)** | **Analyzing** |
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|  |  | **UNITV (CO5)** |  |  |
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| **Q.9** | **(a)** | What do you mean by ANN? Also Explain Mathematical Structure of Perceptron in ANN. | **(6)** | **Applying** |
|  |  |  |  |  |
|  | **(b)** | What do you mean by neural networks and explain the role of artificial neural network in detail. | **(6)** | **Understanding** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
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| **Q.10** | **(a)** | Draw and State Biological Neuron Architecture. Also Simulate Biological Neuron with Artificial Neuron. | **(6)** | **Creating** |
|  |  |  |  |  |
|  | **(b)** | Define McCulloch-Pitt’s Perceptron in ANN .Also discuss various Learning Rules in ANN, Explain? | **(6)** | **Applying** |