**POORNIMA UNIVERSITY, JAIPUR**

**END SEMESTER EXAMINATION, APRIL 2023**

|  | **2BT4145** | Roll No. | Total Printed Pages: 2 |
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| **2BT4145** |  |
| B. Tech. II Year IV- Semester (Main/Back) End Semester Examination, April 2023  **(AIDS)** | |
| **BCEECE4112 : Fundamentals of 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-----------------------**

|  |  |  |  |
| --- | --- | --- | --- |

|  |  | **UNIT-I (CO1)** | **Marks** | **Bloom Level** |
| --- | --- | --- | --- | --- |
| **Q.1** | **(a)** | Define: Machine Learning | **(3)** | REMEMBER | |
|  |  |  |  |  | |
|  | **(b)** | Discuss the types of Machine Learning with suitable example | **(9)** | REMEMBER | |
|  |  |  |  |  | |
|  |  | **OR** |  |  | |
|  |  |  |  |  | |
| **Q.2** |  | Explain the Markov Decision Process with suitable example. | **(12)** | UNDERSTAND | |
|  |  |  |  |  | |
|  |  | **UNIT-II (CO2)** |  |  | |
|  |  |  |  |  | |
| **Q.3** | **(a)** | Explain the Contingency Table with example | **(6)** | UNDERSTAND | |
|  |  |  |  |  | |
|  | **(b)** | Discuss the Pearson’s R value with example | **(6)** | ANALYSIS | |
|  |  |  |  |  | |
|  |  | **OR** |  |  | |
|  |  |  |  |  | |
| **Q.4** |  | Explain the steps to Find the best fit line in Linear Regression with example. | **(12)** | ANALYSIS | |
|  |  |  |  |  | |
|  |  | **UNIT-III (CO3)** |  |  | |
|  |  |  |  |  | |
| **Q.5** |  | Enumerate the basic terminologies and types Classification with its applications | **(12)** | UNDERSTAND | |
|  |  |  |  |  | |
|  |  | **OR** |  |  | |
|  |  |  |  |  | |
| **Q.6** |  | Using KNN classification algorithm to predict the T-shirt size of a new customer with height=162cm and weight=62kg with the help of the following dataset including height, weight and T-shirt size information. | **(12)** | APPLY | |
|  |  | |  |  |  | | --- | --- | --- | | **Height (in cms)** | **Weight (in kgs)** | **T Shirt Size** | | 158 | 58 | M | | 158 | 59 | M | | 158 | 63 | M | | 160 | 59 | M | | 160 | 60 | M | | 163 | 60 | M | | 163 | 61 | M | | 160 | 64 | L | | 163 | 64 | L | | 165 | 61 | L | | 165 | 62 | L | | 165 | 65 | L | | 168 | 62 | L | | 168 | 63 | L | | 168 | 66 | L | | 170 | 63 | L | |  |  | |
|  |  |  |  |  | |
|  |  | **UNIT-IV (CO4)** |  |  | |
|  |  |  |  |  | |
| **Q.7** |  | Use the k-Means clustering algorithm and Euclidean distance, to cluster the following 10 samples into 3 clusters.  Solved K-Means Clustering - 15 marks Use the K-means | Chegg.com | **(12)** | APPLY | |
|  |  |  |  |  | |
|  |  | **OR** |  |  | |
|  |  |  |  |  | |
| **Q.8** |  | Describe about Working of Mean-Shift Algorithm And its Advantages and Disadvantages. | **(12)** | UNDERSTAND | |
|  |  |  |  |  | |
|  |  | **UNIT V (CO5)** |  |  | |
|  |  |  |  |  | |
| **Q.9** |  | Explain the performance metrics of Regression in detail. | **(12)** | UNDERSTAND | |
|  |  |  |  |  | |
|  |  | **OR** |  |  | |
|  |  |  |  |  | |
| **Q.10** |  | Discuss the performance metrics of classification with example | **(12)** | UNDERSTAND | |