**POORNIMA UNIVERSITY, JAIPUR**

**END SEMESTER EXAMINATION, November 2022**

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|  | **3BT5171** | Roll No. | Total Printed Pages: 2 |
| **3BT5171** |  |
| B. Tech. III Year V-Semester (Main/Back) End Semester Examination, November 2022  **(DS / AI / CE)** | |
| **BDS05101 / BCE05102 / BAI05102 : Machine Learning** | | | |

# Max. Time: **3** Hours. Max. 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.----------------------------------------------** **2.-----------------------------------------**

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|  |  | **UNIT-I (CO1)** | **Marks** | **Bloom Level** |
| **Q.1** | **(a)** | State the application of reinforcement learning. Distinguish the positive and negative reinforcement learning through suitable example. | **(6)** | **Remembering** |
|  |  |  |  |  |
|  | **(b)** | Describe the clustering and classification with proper application area. | **(6)** | **Remembering** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
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| **Q.2** | **(a)** | Mention the role of Markov Decision Process in context of Reinforcement learning. | **(6)** | **Understanding** |
|  |  |  |  |  |
|  | **(b)** | Let’s suppose that you are subject matter expert in an Edu-tech company. Your curriculum manager assigns you a task to tabulate the SARSA and Q learning algorithm. Show your expertise with proper example | **(6)** | **Analysing** |
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|  |  | **UNIT-II (CO2)** |  |  |
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| **Q.3** | **(a)** | Classify the Lasso and Ridge regression with its use cases with proper example. | **(6)** | **Analysing** |
|  |  |  |  |  |
|  | **(b)** | Interpret the result of a liner regression model in following context of following matrices: -  (i) R2 (ii)MAE | **(6)** | **Applying** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
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| **Q.4** | **(a)** | Analyse the condition where a data scientist will use Bayesian regression. | **(6)** | **Analysing** |
|  |  |  |  |  |
|  | **(b)** | Assume you have dataset of a motor driving school. You have a hypothesis that women are not driver compare to men. As being a data scientist, which method you will opt. justify your answer with example? | **(6)** | **Applying** |
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|  |  | **UNIT-III (CO3)** |  |  |
|  |  |  |  |  |
| **Q.5** | **(a)** | Scathe the diagram of decision tree for following:  1. Root 2. Terminal Node 3.Decision Node | **(6)** | **Applying** |
|  |  |  |  |  |
|  | **(b)** | Assess the precision and recall with its use cases, that when one should use precision or recall. | **(6)** | **Evaluating** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
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| **Q.6** | **(a)** | Showcase the merits and demerits of decision tree with proper example. | **(6)** | **Applying** |
|  |  |  |  |  |
|  | **(b)** | Summarize the simple SVM and kernel SVM with suitable problem and solution statement. | **(6)** | **Evaluating** |
|  |  |  |  |  |
|  |  | **UNIT-IV (CO4)** |  |  |
|  |  |  |  |  |
| **Q.7** | **(a)** | Compare the clustering and classification with scenario of applying. | **(6)** | **Applying** |
|  |  |  |  |  |
|  | **(b)** | Suppose you are mentor of data science project. For you team member, create a clustering workflow with proper example and diagram. | **(6)** | **Applying** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
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| **Q.8** |  | Write shorts note on:  (i) Agglomerative clustering (ii) Centroid Clustering | **(12)** | **Understanding** |
|  |  |  |  |  |
|  |  | **UNIT V (CO5)** |  |  |
|  |  |  |  |  |
| **Q.9** | **(a)** | Assume you are working on a medical data set where accuracy to diagnosis of disease must be very high. How you will find the best threshold value for classification. | **(6)** | **Applying** |
|  |  |  |  |  |
|  | **(b)** | Differentiate between KAPPA and MCC with example. | **(6)** | **Understanding** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
|  |  |  |  |  |
| **Q.10** |  | Write short notes on following:  (i) elbow visualization (ii) silhouette score | **(12)** | **Evaluating** |