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Roll No. _____

B.TECH- CSAI (6th SEMESTER)
END-SEMESTER EXAMINATION (MAY 2022)

Course Code: CACSC19

Course Title: AI Hardware and Tools Workshop

Time: 3 Hours

Max. Marks: 20

Note: - Attempt all the five questions. Missing data/ information if any, may be suitably assumed & mentioned in the answer.

| Q. No. | Question | Marks | CO |
|-----------|---|-------|-----|
| Q1 | Attempt any 2 parts of the following. | | |
| 1a | What do you understand by TinyML? What is difference between TinyML and ML? Discuss the challenges of low-power ML applications. | 2 | CO1 |
| 1b | What are the advantages of TinyML? Why microcontrollers for TinyML, not CPU? Explain with suitable example. | 2 | CO1 |
| 1c | Briefly explain a Capstone Project one can implement utilizing TinyML on a microcontroller. | 2 | CO5 |
| Q2 | Attempt any 2 parts of the following. | | |
| 2a | Explain the Statistical and Programming features of R Programming Language. | 2 | CO2 |
| 2b | What are the different data structures in R? What are the uses of the following R Packages- ggplot2, dplyr, dygraphs, leaflet? | 2 | CO2 |
| 2c | Briefly explain a Capstone Project one can develop utilizing R library on data visualization and analytics. | 2 | CO5 |
| Q3 | Attempt any 2 parts of the following. | | |
| 3a | What is Data Visualization? Why is it important in business? What are its advantages? | 2 | CO2 |
| 3b | What is Power BI ? How Power BI helps in providing an effective solution for businesses? | 2 | CO3 |
| 3c | Briefly explain a Capstone Project one can develop using Power BI for data visualization and analytics. | 2 | CO5 |

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| Q4 | Attempt any 2 parts of the following. | | |
| 4a | How is distributed database processed using AI? How can you achieve machine learning in Spark? | 2 | CO4 |
| 4b | Which tools Spark's Machine Learning library (MLlib) provide? Highlight their basic features/uses. | 2 | CO4 |
| 4c | Briefly explain a Capstone Project one can develop using Apache Spark on distributed databases. | 2 | CO5 |
| Q5 | Attempt any 2 parts of the following. | | |
| 5a | What is DevOps lifecycle? Explain how the DevOps lifecycle works at every stage with an illustrated infinite loop diagram with the related tools. | 2 | CO5 |
| 5b | What are the benefits and challenges of DevOps? | 2 | CO5 |
| 5c | Explain a Capstone Project one can develop using an Open Source framework focused on DevOps for AI deployment. | 2 | CO5 |