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| **Register Number** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**SRM INSTITUTE OF SCIENCE AND TECHNOLOGY**

***SRM Nagar, Kattankulathur – 603203, Chengalpattu District, Tamil Nadu***

**College of Engineering and Technology**

**School of Computing**

**Department of Data Science and Business Systems**

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| **Test** | **:** CLA-T3 | **Date** | **:** 03.05.2024 |
| **Course Code & Title** | **:** NATURAL LANGUAGE PROCESSING | **Duration** | **:** 2 HOURS |
| **Year & Sem** | **:** III Year / V Sem | **Max Marks** | **:** 50 |

**Course Articulation Matrix:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S.No.** | **Course Outcome** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** |
| 1 | CO1 | 3 | 3 | 2 | - | - | - | - | - | - | - | - | - |
| 2 | CO2 | 3 | 3 | 2 | - | - | - | - | - | - | - | - | - |
| 3 | CO3 | 3 | 3 | 2 | - | - | - | - | - | - | - | - | - |
| 4 | CO4 | 3 | - | - | 3 | 3 | - | - | - | - | - | - | - |
| 5 | CO5 | - | - | 2 | 3 | 3 | - | - | - | - | - | - | - |

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| **Part – A (5 x 5 = 25 Marks)**  **Instructions: Answer any Four** | | | | | | | |
| **Q. No** | **Question** | **Marks** | **BL** | **CO** | **PO** | **PI Code** |
| 1 | Propose methods for evaluating the effectiveness and accuracy of your chatbot in terms of conversation quality, information retrieval, and summarization capabilities. | 5 | 2 | 5 | 2 | 1.7.2 |
| 2 | Explain the process of fine-tuning pre-trained models like BERT and RoBERTa for specific downstream tasks such as text classification and text generation. | 5 | 3 | 4 | 2 | 1.7.2 |
| 3 | Describe the architecture of Long Short-Term Memory (LSTM) units. How do LSTMs improve upon the limitations of traditional RNNs in processing sequential data? | 5 | 3 | 4 | 2 | 1.7.2 |
| 4 | Describe the steps involved in the fine-tuning process, including data preparation, model adjustment, and evaluation criteria. | 5 | 3 | 4 | 2 | 1.7.2 |
| 5 | Explain the architecture of Transformer models, emphasizing the role of self-attention and multi-headed attention mechanisms in achieving parallel processing and capturing complex dependencies in data | 5 | 3 | 4 | 2 | 1.7.2 |