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| Faculty of Engineering and Technology | | | |
| Ramaiah University of Applied Sciences | | | |
| Department | Computer Science and Engineering | Programme | B. Tech. |
| Semester/Batch | 6th/2018 | | |
| Course Code | 19CSC312A | Course Title | Artificial Intelligence |
| Course Leader(s) | Dr. Subarna Chatterjee, Gp. Capt. Rath and Santoshi Kumari | | |

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| **Course Marks Tabulation** | | | | |
| **Question** | **First Examiner** | **Remarks** | **Moderator** | **Remarks** |
| **1** |  |  |  |  |
| **Marks (Max 25 )** |  |  |  |  |
| **Signature of First Examiner Signature of Moderator** | | | | |

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| Assignment-2 | | | | | | | | | |
| Register No: | | | |  | Name of Student | |  | | |
| Questions | Marking Scheme | | | | | Marks | | | |
| Max Marks | | First Examiner Marks | Moderator |
| Question 1 |  | | | | | | | | |
| 1.1 | Compare recent algorithms of NLP showing the steps to address the issue | | | | **03** | |  |  |
| 1.2 | Identify and explain the appropriate pre-processing techniques. | | | | **03** | |  |  |
| 1.3 | Identify and explain the appropriate NLP based sentiment analysis technique. | | | | **04** | |  |  |
| **Question 1 Max Marks** | | | | | **10** | |  |  |
| Question 2 | 2.1 | | Perform pre-processing on the created customer dataset | | | **05** | |  |  |
| 2.2 | | Perform sentiment analysis of the customer. | | | **07** | |  |  |
| 2.3 | | Results and Discussions. | | | **03** | |  |  |
| **Question 2 Max Marks** | | | | | **15** | |  |  |
| **Total Assignment Marks** | | | | | | 25 | |  |  |

**Please note:**

1. Documental evidence for all the components/parts of the assessment such as the reports, photographs, laboratory exam / tool tests are required to be attached to the assignment report in a proper order.
2. The First Examiner is required to mark the comments in RED ink and the Second Examiner’s comments should be in GREEN ink.
3. The marks for all the questions of the assignment have to be written only in the **Component – CET B: Assignment** table.
4. If the variation between the marks awarded by the first examiner and the second examiner lies within +/- 3 marks, then the marks allotted by the first examiner is considered to be final. If the variation is more than +/- 3 marks then both the examiners should resolve the issue in consultation with the Chairman BoE.

**Assignment-2**

**Instructions to students:**

1. The assignment consists of **2** question.
2. Maximum marks is **25**.
3. The assignment has to be neatly word processed as per the prescribed format.
4. The maximum number of pages should be restricted to **15**.
5. The printed assignment must be submitted to the course leader.
6. **Submission Date: 19 Jun 2021 (Saturday)**
7. **Submission after the due date is not permitted.**
8. **IMPORTANT**: It is essential that all the sources used in preparation of the assignment must be suitably referenced in the text.
9. Marks will be awarded only to the sections and subsections clearly indicated as per the problem statement/exercise/question

**Preamble**

Natural Language Processing (NLP) refers to AI method of communicating with an intelligent systems like Siri, Alexa using a natural language such as English, Hindi. NLP, is an attempt to make a computer understand human language. Computers can easily understand programming languages. How do we make sure that computers are able to understand a natural language?

Processing of Natural Language is required when you want an intelligent system like a robot to perform as per your instructions, or, when you want to hear decision from a dialogue based expert system. The field of NLP involves making computers to perform useful tasks with natural languages that humans use. The input and output of an NLP system can be −

* Speech
* Written Text

Natural language processing can be used to extract keywords (aspects) from a product review. For example, from the reviews of a given product, Amazon, extracts key-words and then allows users to search comments by these key-words to identify the opinion about the product and its components.

**Question 1** (**3+3+4=10 Marks)**

A literature review is a comprehensive summary of research undertaken on a topic. The literature review surveys scholarly articles, books, and other sources relevant to a particular area of research. The review should enumerate, describe, summarize, objectively evaluate and clarify issues, if any, discussed in the research.

Literature review on customer sentiment analysis about a product and its applications

* 1. Compare recent algorithms of NLP showing the steps to address the aspect based sentiment analysis and opinion mining
  2. Identify and explain the appropriate pre-processing techniques to extract meaningful information from reviews.
  3. Identify and explain the appropriate NLP based sentiment analysis technique to obtain aspects and opinion from the reviews.

**Question 2** **(5+7+3=15 Marks)**

Develop an NLP program to analyze sentiment of the customer about the product (used in Question 1).

* 1. Perform pre-processing on the created customer dataset
  2. Perform sentiment analysis of the customer.
  3. Bring out the Results and Discuss them