



## Mid Term (Odd) Semester Examination October 2024

Roll no.....

Name of the Course and semester: B.Tech AI ML Specialization 5<sup>th</sup> sem

Name of the Paper: Natural Language Processing

Paper Code: TCS 519

Time: 1.5 hour

Maximum Marks: 50

**Note:**

- (i) Answer all the questions by choosing any one of the sub questions
- (ii) Each question carries 10 marks.

Q1. (10 Marks)

a. Define the following terms with examples: (CO1)

- i) ROOT ii) Stem iii) Affix iv) Morpheme

OR

b. Discuss how irregular forms (like "went" as the past tense of "go") pose a challenge for morphological analysis. How can morphological models address such issues? (CO1)

Q2. (10 Marks)

a. Explain the difference between content-based and structure-based approaches to document analysis. What is meant by the "structure" of a document? (CO1)

OR

b. Explain the application of machine learning to the study of document structure. Add particular models along with their uses.(CO1)

Q3. (10 Marks)

a. What are the main issues and challenges in applying morphological models to languages with extensive word formation rules? (CO1)

OR

b. How do morphological models handle ambiguous word forms, such as homographs or words with multiple possible morphological analyses? (CO1)

Q4. (10 Marks)

a. Explain the difference between Natural Language Processing (NLP) and Natural Language Understanding (NLU). (CO2)

OR

b. What are the key challenges involved in Natural Language Understanding? (CO2)

Q5. (10 Marks)

a. Describe the main goals of Natural Language Understanding in applications such as chatbots or virtual assistants. (CO2)

OR

b. What are the key differences between context-free grammars used in programming languages and the grammar rules of natural languages? (CO2)