



Sixth Semester B.E./B.Tech. Degree Examination, June/July 2025

## Natural Language Processing

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

### Module-1

- 1 a. What is Natural Language Processing? Explain the challenges of NLP. (10 Marks)
- b. List and explain any 5 NLP applications. (10 Marks)

OR

- 2 a. List and briefly explain the various levels of Natural Language Processing. (05 Marks)
- b. List out the modules and components of Government and Binding. Explain any four. (10 Marks)
- c. Explain the n-gram model of Statistical Language models. (05 Marks)

### Module-2

- 3 a. For a given text paragraph, explain how do you search for the strings containing email address using regular expressions. (04 Marks)
- b. With a block diagram explain the two steps morphological passes for converting surface form of a word to its underlying lexical form. (06 Marks)
- c. Explain briefly the minimum edit distance with an example. (10 Marks)

OR

- 4 a. What do you mean by Context Free Grammar? Apply the given sentence in terms of a parsing tree along with a bracketed notation.  
HENA READS A BOOK (06 Marks)
- b. Briefly explain the CYK algorithm with an example. (08 Marks)
- c. Derive using the top-down, depth-first, left to right manner parsing algorithm on the given sentence.  
PAINT THE DOOR (06 Marks)

### Module-3

- 5 a. Explain with an example the four patterns to extract the relationship between two entries. (08 Marks)
- b. Give a brief explanation on dependency path kernel for relationship extraction. (08 Marks)
- c. Discuss the knowledge roles for below sentence with the same domain concepts.
  - (i) The calculated insulating resistance values way is the safe operating area.
  - (ii) Compared to the last examination, lower values for the insulating resistance were ascertained due to dirtiness at the surface. (04 Marks)

OR

- 6 a. Explain functional overview of in fact system with a neat diagram. (10 Marks)
- b. Explain the architecture used in the task of learning to annotate cases with knowledge roles. (10 Marks)

### Module-4

- 7 a. Explain the word matching feedback systems. (08 Marks)
- b. Illustrate the Topic Models (TM) with feedback systems. (04 Marks)
- c. Briefly discuss iSTART system and their modules. (08 Marks)

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- 8 a. Explain SVM learning method in sequence model estimation. (10 Marks)
- b. Discuss on the various approaches to analyzing texts. (10 Marks)

### Module-5

- 9 a. With a neat diagram explain the design features of information retrieval model. (06 Marks)
- b. By considering an example, provide a detailed discussion on boolean model of classical information system. (06 Marks)
- c. Explain with an example on fuzzy model of information retrieval system. (08 Marks)

OR

- 10 Write a short note on the following lexical resources: (20 Marks)
  - a. World Net
  - b. Frame Net
  - c. Stemmers

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