



CBCS SCHEME

18CS743

Seventh Semester B.E. Degree Examination, Dec.2024/Jan.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. Define NLP. List and explain applications of NLP with justification and example. (10 Marks)
- b. Explain transformational grammar with example. (10 Marks)

OR

- 2 a. Briefly explain various levels of processing with example and types of knowledge it involves. (10 Marks)
- b. Write the C-structure and F-structure for the following sentence and the CFG roles given below:

“She saw stars”

$S \rightarrow NPVP$

$VP \rightarrow V\{NP\}\{NP\}PP^*\{S'\}$

$PP \rightarrow PNP$

$NP \rightarrow Det N\{PP\}$

$S' \rightarrow Comp S$

(10 Marks)

Module-2

- 3 a. What is a Finite State Transducer (FST)? Explain FST-based morphological parser with an example. (10 Marks)
- b. Briefly explain Rule-based stochastic and Hybrid taggers with example. (10 Marks)

OR

- 4 a. Explain Leventhein minimum edit distance algorithm using distance equation in tumour and tutor as an example. (10 Marks)
- b. Explain Earley parsing algorithm in detail. (05 Marks)
- c. How this parsing algorithm used to word parse “CSE students like Pizza”. (05 Marks)

Module-3

- 5 a. Explain dependency path kernel for relation extraction. (10 Marks)
- b. With a neat diagram describe the architecture used in the task of learning to annotate cases with knowledge roles. (10 Marks)

OR

- 6 a. Explain the steps used in active learning strategy for acquiring labels from a human annotator compared with NLP (10 Marks)
- b. With a neat diagram explain the Infact framework functional overview taking appropriate example. (10 Marks)

Module-4

- 7 a. Explain in detail high level representation approach in text mining. Show the steps involved in it. (10 Marks)
- b. Write a short note with example on :
(i) Word matching feedback systems
(ii) Latent Semantic Analysis feedback systems. (10 Marks)

OR

- 8 a. Briefly describe the evolutionary model for knowledge discovery from texts with a neat diagram. (10 Marks)
- b. Write a note on various approaches to analyzing texts. (10 Marks)

Module-5

- 9 a. Explain any two classical information retrieval models in detail. (10 Marks)
- b. Write a short note on :
(i) Wordnet (ii) Framenet (10 Marks)

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OR

- 10 a. Explain Cluster model and Fuzzy alternative IR models in detail. (10 Marks)
- b. Write short note on :
(i) Zipf's law
(ii) tf-idf term weightage (10 Marks)

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