

**B.TECH.****THEORY EXAMINATION (SEM-VIII) 2016-17****NATURAL LANGUAGE PROCESSING****Time : 3 Hours****Max. Marks : 100****Note : Be precise in your answer. In case of numerical problem assume data wherever not provided.****SECTION A****1. Answer all the questions. Each question carries equal mark.****10x2=20**

- Briefly define what is meant by the *semantics* of a natural language utterance.
- What is language modeling?
- Describe major tasks of natural language processing.
- Explain why RSST had a greater influence on NLG.
- Differentiate between Left associative grammar and Ambiguous grammars.
- Write down one ways in which humans can help a machine translation system produce better quality.
- List the set of conceptual tenses proposed by Schank.
- Define part of speech tagging with example.
- What is machine translation? Explain with example.
- List the major task of Natural Language Processing.

**SECTION B****2. Answer any five questions from this section. Each question carries equal marks. 5x10=50**

- Write an algorithm for parsing a finite-state transducer using the pseudo code. Explain the algorithm with an example.
- What are the different machine learning methods used in language translation? Explain any two methods in detail.
- Explain the graph models and optimization techniques used in semantics with example.
- Write an algorithm for converting an arbitrary context-free grammar into Chomsky normal form. Explain it with a suitable example.
- Compare and contrast top-down and bottom-up parsers approaches.
- Explain Augmented Transition Networks with suitable example.
- How does movement phenomenon affect any natural language processing system?
- Describe the role of NLP language interpretation.

**SECTION C****Answer any two questions of the following. Each question carries equal marks.****2x15=30**

- Explain with an example "Evaluating Language Understanding Systems" ?
  - Define the terms 'Lexicon' and 'Morpheme' related to linguistic analysis.
- Explain the Chomsky hierarchy in detail.
  - Discuss the applications and commercial uses of NLP in detail.
- Write short notes on any three of the following
  - Semantics and Pragmatics
  - Probabilistic Context-Free Grammar
  - Resolution of ambiguities
  - Different levels of Language Analysis