

**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**

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

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

**SECTION C**

**Answer any two questions of the following. Each question carries equal marks.**

**2x15=30**

3.
  - a) Explain with an example "Evaluating Language Understanding Systems" ?
  - b) Define the terms 'Lexicon' and 'Morpheme' related to linguistic analysis.
4.
  - a) Explain the Chomsky hierarchy in detail.
  - b) Discuss the applications and commercial uses of NLP in detail.
5. Write short notes on any three of the following
  - a) Semantics and Pragmatics
  - b) Probabilistic Context-Free Grammar
  - c) Resolution of ambiguities
  - d) Different levels of Language Analysis