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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

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