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Total No. of Pages : 02

Total No. of Questions : 08

M.Tech.(IT) E1(2015 & Onwards)/(CSE Engg.)EI-I (2015 to 2017) (Sem.-2)

NATURAL LANGUAGE PROCESSING

Subject Code : MTCS-204

Paper ID : [72888]

Time : 3 Hrs.

Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.

1. (a) Describe tagsets for English language. What are the different stochastic methods used for part of speech tagging? Explain. (10)
(b) Write an algorithm for converting an arbitrary context-free grammar into Chomsky normal form. Explain it with a suitable example. (10)
2. (a) Between the words eat and find which would you expect to be more effective in selection restriction-based sense disambiguation? Why? (10)
(b) Discuss how you would augment a parser to deal with input that may be incorrect, such as a spelling errors or misrecognitions. (10)
3. Discuss the following with suitable example : (20)
(a) HMM
(b) Phonetic transcription
4. (a) Proponents of information retrieval occasionally claim that natural language text in their raw form are a perfectly suitable source of knowledge for question answering. Sketch an argument against this claim. (10)
(b) What is the need of machine translation system? Explain. (10)

5. (a) Assume a chart parser using a packed representation. Develop an upper limit on the number of operations the parser will have to do to parse a sentence of length S using a grammar that uses N nonterminals and T terminal symbols. (10)
- (b) For the sentence "Request that customer" define a CFG. Use Earley algorithm to parse this sentence. Show each step clearly. (10)
6. What do you understand by Long distance dependencies? How can you modify your grammar to handle Long distance dependencies? Explain with example. (20)
7. (a) What are the issues in speech recognition system? Discuss with example. Give the applications of speech recognition system also. (10)
- (b) What do you understand by regular expressions? How are regular expressions related to finite- state automata? Explain with suitable example. (10)
8. (a) Give an example of a simple measurable feature that you could provide to a machine learning system learning a classifier for disambiguating the word *bat* (indicating either an animal or a tool used in cricket) in context. (10)
- (b) Describe different techniques used to detect word boundary. (10)