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B.E. (Computer Science & Engineering) Eighth Semester (C.B.S.)

Elective-IV : Natural Language Processing

P. Pages : 2 **NRJ/KW/17/4754**

Time : Three Hours * 0 2 7 3 * Max. Marks : 80

Notes :
1. Solve Question 1 OR Questions No. 2.
2. Solve Question 3 OR Questions No. 4.
3. Solve Question 5 OR Questions No. 6.
4. Solve Question 7 OR Questions No. 8.
5. Solve Question 9 OR Questions No. 10.
6. Solve Question 11 OR Questions No. 12.
7. Assume suitable data whenever necessary.
8. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) What are the key issues of Natural Language Processing. **7**

b) Explain the role of machine learning in NLP. **6**

OR

2. a) Explain the difficulties in processing of natural language. **7**

b) Describe various tasks of Natural language processing. **6**

3. a) Explain the role of language model in NLP. **6**

b) What are the techniques for evaluating language models. **7**

OR

4. a) Explain the difference between word classes and part - of - speech tagging. **6**

b) What is the role of smoothing algorithm in NLP. **7**

5. a) What are the problem with basic Top - Down parser in NLP. **7**

b) Why CFG is used for processing language? What is generative grammar? How it differs from CFG. **7**

OR

6. a) Write an algorithm for converting an arbitory context free grammar into Chomsky - normal form. Explain with suitable example. **7**

b) Draw phase structure tree representing one parse for the following sentence. Also make a list of the phrase structure rules that you assume. **7**
"John and Mary bought a refrigerator with three doors".

7.	a)	What are the characteristics of syntax driven semantic analysis.	**6**
	b)	Explain Lexical semantic with proper example.	**7**

OR

8.	a)	Explain word sense disambiguation in brief.	**7**
	b)	Write short note on : "Semantic Parsing".	**6**
9.	a)	State and explain various techniques of text summarization.	**7**
	b)	How the information is extracted using sequence labelling.	**6**

OR

10.	a)	What is sentiment analysis. Explain in brief.	**7**
	b)	Explain the need of entity recognition and relation with suitable example.	**6**
11.	a)	What are the basic issues in machine translation.	**7**
	b)	Explain phrase based translation with example.	**7**

OR

12. Write short note on : **14**

i) Application of NLP. (4 M)

ii) Synchronous Grammar (5 M)

iii) Statistical translation (5 M)

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High expectations are the key to everything.

~ Sam Walton