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

Elective - IV : Natural Language Processing

P. Pages : 2 **NJR/KS/18/4754**

Time : Three Hours * 0 6 2 7 * Max. Marks : 80

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

1. a) What are the key issues of Natural language processing. **7**

b) Discuss the organization of NLP system. **7**

OR

2. a) Describe various task of NLP. **7**

b) What is part-of-speech? How it is used in tagging sentence. **7**

3. a) Explain probability model of HMM with example. **6**

b) What are the problems in basic Top-Down parser in NLP. **7**

OR

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

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

5. a) Discuss how would you argument passes to deal with input that may be incorrect, such as a spelling error or non-recognition. **6**

b) Draw a 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".

OR

6. a) Why CFG is used for processing language? What is generative grammar? How it differs from CFG. **6**

b) Explain word sense disambiguation in detail. **7**

7.	a)	Explain the corpus process in detail.	**6**
	b)	What are the highlights of syntax driven semantics.	**7**

OR

8.	a)	The semantic of natural language expression can be expressed in first order predicate logic. Express the semantic of the sentences in the first order predicate logic. i) the dog sneezes the cat. ii) the mouse hates iii) the cat the mouse hates iv) 'the dog the cat the mouse sees hates sneezes.	**6**
	b)	How context sensitive speech coversion is done? Explain.	**7**
9.	a)	Explain information retrieval vector space model.	**6**
	b)	State and explain various techniques of text summarization.	**7**

OR

10.	a)	Explain sentiment analysis in brief.	**6**
	b)	How different entities are recognize in NLP? How different entities are related to each other.	**7**
11.	a)	Explain Steps in machine translation.	**7**
	b)	Explain phrase based translation with example.	**7**

OR

12.		Explain Naive Buys machine learning algorithm. Give the formula and explain how the necessary parameters can be retain	**14**

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High expectations are the key to everything.

~ Sam Walton