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

Elective-IV : Natural Language Processing

P. Pages : 2 **NRT/KS/19/3698**

Time : Three Hours * 0 7 0 2 * 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. Due credit will be given to neatness and adequate dimensions.
9. Assume suitable data whenever necessary.

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

b) What is graph unification algorithm. **6**

OR

2. a) What type of grammar is suitable for Natural Language Processing? **7**

b) What is part of speech? How it is used in tagging sentence. **6**

3. a) What are the techniques for evaluating language models? **7**

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

OR

4. a) Explain probability model of HMM with example. **7**

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

5. a) What are issues in Parsing? Discuss various techniques used for parsing with suitable example. **7**

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

OR

6. a) Draw a pharse structure tree representing one parse for the following sentence. Also make a list of the pharse structure rules that you assume. **7**

"I saw a girl with a telescope"

b) Explain Penn Treebank with example. **6**

7. a) Differentiate between various semantic parsers and comment on their accuracy. **7**

b) How context sensitive speech conversion is done? Explain. **7**

OR

8. a) The semantic of Natural Language expression can be expressed in first order predicate logic. Express the semantics of the sentences in first order predicate logic. **7**
i) Lion lives in den.
ii) Result of final year students are excellent.

b) What are the highlights of syntax driven semantics. **7**

9. a) What is named entity recognition? Explain with example. **6**

b) State and explain various techniques of text summarization. **7**

OR

10. a) Which factors can be modeled and weighted against each other in a pronoun interpretation algorithm. **7**

b) Explain sentiment analysis in brief. **6**

11. a) Explain Question-Answering system in NLP. **6**

b) Explain steps in machine translation. **7**

OR

12. a) Explain following terms with example. **7**
i) Disclosure.
ii) Monologue.
iii) Dialogue.
iv) HCL.

b) Explain phrase based translation with example. **6**

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