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- 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.

1. a) Explain NLP system architecture. 7
b) Explain complex language behaviour and its categories. 7

OR

2. a) What is significance of natural language processing. 7
b) Explain various tasks of Natural language processing. 7
3. a) What is the difference between word classes and part-of-speech tagging. 6
b) What are the techniques for evaluating language models. 7

OR

4. a) Explain with example, how part-of-speech tagging a sentence works. 6
b) What is the role of smoothing algorithm in NLP. 7
5. a) What is generative grammar? How it differs from CFG? 6
b) Which type of parser is suitable for NLP? What is its significance? 7

OR

6. a) Write down two desirable properties for a formal language to be used for representing natural language meaning. 5
b) Consider the following context free grammar: 8
 $S \rightarrow NP VP$ $N \rightarrow \text{dog}$ $V \rightarrow \text{sees}$
 $NP \rightarrow \text{Det } N$ $N \rightarrow \text{cat}$ $V \rightarrow \text{hates}$
 $VP \rightarrow V$ $N \rightarrow \text{mouse}$ $V \rightarrow \text{sneezes}$
 $VP \rightarrow V NP$ $\text{Det} \rightarrow \text{the}$

Which of the following sentences are recognized by this grammar and why?

- i) the dog sneezes the cat.
- ii) the mouse hates
- iii) the cat the mouse hates
- iv) the mouse hates the mouse

7. a) Explain Lexical semantic with proper example. 7
b) Write short note on "Semantic Parsing". 6

OR

8. a) Explain corpus processing in detail. 6
b) How text summarization done with the help of domain specific tags? Explain. 7
9. a) Explain context sensitive speech conversion. 7
b) How the information is extracted using sequence labelling. 7

OR

10. a) Explain the need of entity recognition and relation with suitable example. 7
b) What is sentiment analysis. Explain in brief. 7
11. a) What are the applications of NLP? 6
b) What are compositional semantic explain with example. 7

OR

12. a) Explain phrase base translation with example. 7
b) Write short note on synchronous grammar. 6



~ Walt Disney

