B.E. Seventh Semester (Computer Technology) (C.B.S.)

Elective - II : Natural Language Processing

P. Pages : 2 **NKT/KS/17/7483**

Time : Three Hours * 0 1 2 6 * 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.

1. a) "Handling ambiguity in nature language processing is key issue" comment on the statement. **7**

b) Write a regular expression for the following languages: **6**
(You may use pearl notation or the minimal 'algebric' notation.
i) The set of all alphabetic string.
ii) The set of all strings with two consecutive repeated words.
Ex 'the the', "Humbert Humbert'.

OR

2. a) Give various stages in natural language processing. **7**

b) Explain in brief on which operations regular languages are closed? **6**

3. a) Explain Blind graph search algorithm. **7**

b) Explain stochastic part of speech tagging. **7**

OR

4. a) What are the issues in speech recognition system. Describe with example. **7**

b) Find one tagging error in each of the following sentences that arc tagged with the Penn Tree bank target. **7**

i) I/PRP need/VBP a/DT flight/NN
from/1N Atlanta/NN

ii) Does/I/BZ this/DT flight/NN
Serve/VB dinner/NNS

iii) I/PRP have/v'B a/DT friend/NN
living/VBG in/IN Denver/NNP

5. a) Express the semantics of the following sentences using first order predicate logic.

i) The dog sneezes the cat. **3**

ii) The dog the cat the mouse sees hates sneezes. **5**

b) What are the problems of PCFGs. **5**

OR

6. a) What are the issues in parsing? Describe various techniques for passing with suitable example. **7**

b) Write an algorithm for converting an arbitrary context free grammar into Chomsky normal form. Explain it with suitable example. **6**

7. a) What are different type of relations among lexemes and their senses enlist? **7**

b) Give the detailed account of similarities and differences among the following set of lexemes, imitation, synthetic, artificial, fake and simulated. **6**

8. a) What is semantic role labelling? Explain with example. **7**

b) Between the words eat and find, which would you expect to be more effective in selection restriction based sense disambiguation? why? **6**

9. a) Explain information retrieval vertex space model. **7**

b) State and explain various techniques of rent summarization. **6**

OR

10. a) Explain fundamental operations to the discourse model. **7**

b) State and explain the various methodologies of discourse analysis. **6**

11. a) What is functional unification Grammar? Give its utility. **7**

b) What are the phases of machine translation? **7**

OR

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

i) Phrase based translation.

ii) Statistical translation.

iii) Rule based machine translation.

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