Oct.-16/B.E./Insem.- 170
B.E. (Information Technology)
NATURAL LANGUAGE PROCESSING (Elective - II(e))
(2012 Pattern)

Time : 1 Hour] *[Max. Marks : 30*

Instructions to the candidates:

1) *Solve any 1 out of Q1 or Q2, Q3 or Q4 and Q5 or Q6.*
2) *Neat diagrams must be drawn wherever necessary.*
3) *Figures to the right indicate full marks.*
4) *Assume suitable data, if necessary.*

Q1) Draw and explain different levels of language understanding in natural language processing. Give example for each level. **[10]**

OR

Q2) a) Draw and explain flow of information in natural language understanding system. **[6]**

b) Consider the following context-free grammar:

S-> NP VP N-> dog V -> sees

NP -> Det N N -> cat V -> hates

VP -> V N -> mouse V -> sneezes

VP -> V NP Det -> the

Which of the following sentences are recognised by this grammar, and why? **[4]**

i) the dog sneezes the cat

ii) the mouse hates

iii) the cat the mouse hates

iv) the mouse hates the mouse

P.T.O.

Q3) a) Differentiate between the depth-first and breadth-first to down parsing.**[5]**

b) Consider the following CFG:

S -> NP V

S -> NP AUX V

NP -> ART N

Trace one of the chart parsers in processing the sentence

1 The 2 man 3 is 4 laughing 5

with the lexicon entries: the: ART

man: N

is: AUX

laughing:V

Show every step of the parse, giving the parse stack, and drawing the chart each time a nonterminal constituent is added to the chart.   **[5]**

OR

Q4) a) Explain reformulating grammar rules using logic programming with an example.   **[5]**

b) Explain Top-Down chart parsing algorithm with an example.   **[5]**

Q5) Draw and explain parsing with features in chart parsing algorithm.   **[10]**

OR

Q6) a) What is augmented grammar? How is it useful in natural language processing?   **[5]**

b) Explain some basic feature systems for English with an example.   **[5]**

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