Total No. of Questions : 10]

SEAT No. :

P3644

[Total No. of Pages : 3

[4959]-1133
B.E. (I.T.)
NATURAL LANGUAGE PROCESSING
(2012 Pattern) (Semester - I) (Elective -II) (414457E)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to candidates:

1) ***Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10.***
2) ***Draw neat diagrams and assume suitable data wherenver necessary.***
3) ***Figures to the right indicate full marks.***

Q1) a) Define syntactic and semantic level of language understanding in natural language processing. Give example for each level. **[5]**

b) State and explain applications of Natural Language Processing. **[5]**

OR

Q2) a) Write a short note on Standford parser. **[5]**

b) Explain unification grammar in natural language. **[5]**

Q3) 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]**

OR

P.T.O.

Q4) a) Write note on augmented transition networks. **[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?

i) the dog sneezes the cat

ii) the mouse hates

iii) the cat the mouse hates

iv) the mouse hates the mouse **[4]**

Q5) a) Analyze the Human Preferences in Encoding Uncertainty during parsing with an example. **[8]**

b) Estimate Lexical Probabilities using n-gram model using an example. **[8]**

OR

Q6) a) Estimate the Probabilities for Part-of-Speech Tagging using the chain rule with an example. **[8]**

b) Draw and explain shift-reduce parsing in natural language processing. **[8]**

Q7) a) Explain language encoding in logical form case relations. **[8]**

b) Why is word sense disambiguation a challenging problem in natural language processing? **[8]**

OR

Q8) a) What is probabilistic context-free grammar? State the benefits of probabilistic parsing **[8]**

b) Define semantic web ontology. What is the advantage of semantic web ontology? **[8]**

Q9) a) What is semantic web search? Explain with an example. **[9]**

b) How is natural language processing useful in an automatic text clustering problem? **[9]**

OR

Q10)a) How is automatic text summarization performed using natural language processing techniques. **[9]**

b) Explain the problem of machine translation. Define the BLEU score metric used for evaluating machine translation system. **[9]**

x x x