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Reg No .:

Name:

APJ ABDUL KALAM TECHNOLOGICAL UNIVER

Sixth Semester B.Tech Degree Regular and Supplementary Examination

Course Code: CS366

Course Name: NATURAL LANGUAGE PROCESSING

Max. Marks: 100

Duration: 3 Hours

Marks

PART A

Answer all questions, each carries 3 marks.

Identify whether the following sentences contains an intransitive or transitive (3)verb.

> i. Charles laughed.

ii. Sita found the needle.

iii. Ravi ran the machine.

What are the different ways to evaluate a natural language processing system? (3)

Differentiate Bottom-Up Parsing from Top-Down parsing with an example. (3)

Differentiate between terminal symbols, non-terminal symbols and lexical (3)symbols.

PART B

Answer any two full questions, each carries 9 marks.

5

1

2

3

4

(9)

I ate the pizza.

The CFG and the lexical entries are given below:

Create a bottom-up chart parser for the following sentence:

S→ VP	Ċ	$Pro \rightarrow I$
$S \rightarrow NP VP$		Art \rightarrow the
$NP \rightarrow Pro$		$V \rightarrow ate$
$NP \rightarrow Art N$		$N \rightarrow pizza$
$NP \rightarrow N$		
VP→ V NP		

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Identify the head and morphological type of the following sentence segments. a) (5)

i. Wicked as a Jackal

ii. Looked at the culprit.

iii. Slowly like a sloth

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iv. King of the jungle

8

9

v. Faster than the light.

b)		What is a Noun Phrase? What are the different elements of Noun Phrases?	(4)
7	a)	Explain TBL Algorithm. How is it helpful in POS Tagging?	(5)
	b)	Give two examples of dialogue-based application in NLP. Mention any two	(4)
		problems associated with it?	

PART C

Answer all questions, each carries 3 marks.

State the three general principles t	that predict when a garden path senten	ce will (3)
arise.		

In what way the modal operators different from logical operators. Explain with (3) an example.

10 What is meant by thematic roles? Give at least two thematic roles which can be (3) applied to the sentence – Jack broke the window with a hammer at 3.00 a.m.

11 What is the process behind the 'reduce action' and 'shift action' in a Shift- (3) Reduce Parser?

PART D

Answer any two full questions, each carries 9 marks.

- 12 Explain the Hidden Markov model used in POS Tagging. How can Viterbi (9) algorithm be used to optimise it?
- a) What is the use of lambda calculus in linking syntax and semantics? Construct (5) a lambda expression for the proposition "John ate ice-cream". Apply lambda reduction.
 - b). Explain with example the most common forms of movement in linguistic (4) literature.
- 14 a) Explain Statistical Word Sense Disambiguation. (5)
 - b) Describe template matching for semantic interpretation. (4)

PART E

Answer any four full questions, each carries 10 marks.

- 15 a) Explain a simple technique used for identifying the antecedents of pronoun. (5)
 - b) Represent the following sentences in First-Order Predicate Calculus (5)
 - i. Some physical objects are houses.
 - ii. Every house has an owner.

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iii. Peter does not own a house.

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iv. Every vegetarian is intelligent.

v. Every cricket player owns at least one house in Mumbai.

16	a)	What is segmentation and cue phrases in discourse?	(5)	
	b)	How does tense and aspect help the discourse segment?	(5)	
17	a)	What are the important components of an intelligent agent?	(7)	
	b)) What is meant by belief states in knowledge base?		
18	a)	Explain Rule-based Machine Translation with neat architectural diagrams.	(5)	
	b)	How does the Example-based Machine Translation work?	(5)	
19		Give differences between the following in terms of text summarization	(10)	
		procedures		
		i. Indicative vs Informative summary		
		ii. Generic vs User-oriented summary		
		iii. Single Document vs Multi-Document	1	
		iv. Extracts vs Abstracts		
20	a)	Write about any 2 classical models of Information retrieval.	(6)	
	b)	Differentiate between shallow and deep approaches of text summarization.	(4)	

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