Reg N	No.:	Name:	
U		APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY XTH SEMESTER B.TECH DEGREE EXAMINATION(S), DECEMBER 2019	
		Course Code: CS366	
		Course Name: NATURAL LANGUAGE PROCESSING	
Max.	Mark	s: 100 Duration: 3	Hours
		PART A Answer all questions, each carries3 marks.	Marks
1		Explain why CFG is used to represent natural language in parsing	(3)
2		For each sentence, identify whether the different meanings arise from structural	(3)
		ambiguity, semantic ambiguity or pragmatic ambiguity?	
		1. Time flies like an arrow	
		2. He crushed the key to my heart	
3		Identify the morphological type (Noun phrase, Verb Phrase, Adjective Phrase)	(3)
		of following sentence segments	
		1. important to Bill	
		2. looked up the tree	
4		Describe augmented grammar in syntactic analysis	(3)
		PART B	
~		Answer any two full questions, each carries9 marks.	$\langle 0 \rangle$
5	,	Explain POS tagging with example	(9)
6	a)	Distinguish between semantics, pragmatics and discourse	(5)
	b)	Describe open class words and closed class words with examples	(4)
7	a)	Differentiatebetween different morphemes, with examples.	(4)
	b)	Explain lexicon, lexeme and the different types of relations that hold between	(5)
		lexemes	

PART C

Answer all questions, each carries3 marks.

8	Explain the role of selectional restriction in semantic interpretation	(3)
9	Distinguish between bounded movement and unbounded movement and give	(3)
	examples.	
10		$\langle \mathbf{O} \rangle$

10 Explain how ambiguity is encoded in logical form language (3)

11 Perform parsing using simple top down parsing for the sentence "The dogs (3) cried" using the grammar given below:

S->NP VP NP->ART N NP->ART ADJ N VP->V

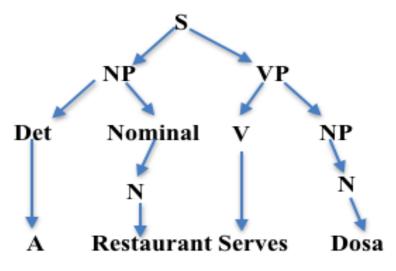
VP->V NP

PART D

Answer any two full questions, each carries9 marks.

- a) Map the following CFG into an equivalent RTN that uses only 3 networks- an (5) S, NP and PP network. Make your network as small as possible. S->NP VP
 VP->V | V NP | V PP
 NP2-> N | ADJ NP2 | NP3 PREPS
 NP3-> N
 PREPS->PP | PP PREPS
 PP->NP
 - b) Discuss the differences between ATN and RTN (4)
 - The parse tree for the sentence "A restaurant serves dosa" is given below. (9)

Perform semantic analysis and show the semantic interpretations of the constituents. Explain the process



- a) Explain the use of modal operators in logical from language and explain how it (5) suffer from the failure of substitutivity
 - b) Between the words eat and find which would you expect to be more effective in (4) selection restriction-based sense disambiguation. Explain.

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PART E

		Answer any four full questions, each carries10 marks.	
15	a)	Explain the different types of inferences	(5)
	b)	Write FOPC for the following sentences:	(5)
		All cats and dogs hate each other	
		I arrived in New York.	
16		Explain vector space model of information retrieval	(10)
17	a)	Explain surface anaphora and the different methods for dealing with surface	(5)
		anaphora	
	b)	Explain the difference of discourse structure from other reference mechanisms	(5)
18	a)	Describe transfer model of Machine Translation. List out its three phases	(5)
	b)	Explain direct machine translation	(5)
19		Explain text summarization and multiple document text summarization with	(10)
		neat diagram	
20		Describe different ways of building belief models in a conversational agent	(10)
