Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SIXTH SEMESTER B.TECH DEGREE EXAMINATION(S), DECEMBER 2019

Course Code: CS366

Course Name: NATURAL LANGUAGE PROCESSING

Max. Marks: 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 ambiguity, semantic ambiguity or pragmatic ambiguity? 1. *Time flies like an arrow* 2. *He crushed the key to my heart*	(3)
3		Identify the morphological type (Noun phrase, Verb Phrase, Adjective Phrase) of following sentence segments 1. *important to Bill* 2. *looked up the tree*	(3)
4		Describe augmented grammar in syntactic analysis	(3)

PART B

Answer any two full questions, each carries9 marks.

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 lexemes	(5)

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

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

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.

12 a) Map the following CFG into an equivalent RTN that uses only 3 networks- an S, NP and PP network. Make your network as small as possible. (5)

S->NP VP

VP->V | V NP | V PP

NP-> ART NP2 | NP2

NP2-> N | ADJ NP2 | NP3 PREPS

NP3-> N

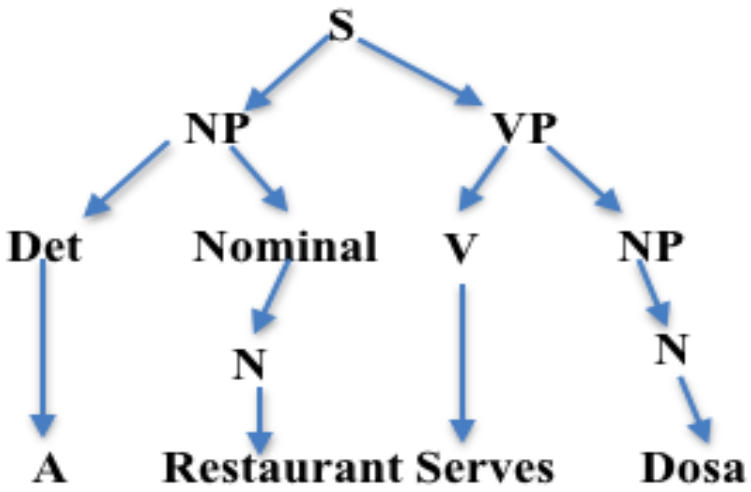
PREPS->PP | PP PREPS

PP->NP

b) Discuss the differences between ATN and RTN (4)

13 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



14 a) Explain the use of modal operators in logical from language and explain how it suffer from the failure of substitutivity (5)

b) Between the words eat and find which would you expect to be more effective in selection restriction-based sense disambiguation. Explain. (4)

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: *All cats and dogs hate each other* *I arrived in New York.*	(5)
16		Explain vector space model of information retrieval	(10)
17	a)	Explain surface anaphora and the different methods for dealing with surface anaphora	(5)
	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 neat diagram	(10)
20		Describe different ways of building belief models in a conversational agent	(10)

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