

**K. J. Somaiya Institute Information Technology, Sion, Mumbai-22**  
**(Autonomous College Affiliated to University of Mumbai)**

Second Half - Winter Examination 2022

M.Tech. (Artificial Intelligence)-SEM-I

Course Code: **PCEDLC1042** and Course Name: **Natural Language Processing**

Date of Exam: 27/02/23

Duration: 02 Hours

Max. Marks: 60

**Instructions:**

- (1) All questions are compulsory.
- (2) Draw neat diagrams wherever applicable.
- (3) Assume suitable data, if necessary.

		Max. Marks	CO	BT level
Q 1	Solve any six questions out of eight.	12		
i)	List different phases of NLP.	2	CO1	U
ii)	Explain the concept of lemmatization.	2	CO2	U
iii)	State the difference between homonymy and polysemy and give an example of each.	2	CO4	U
iv)	Explain role of CFG in parsing.	2	CO3	U
v)	Differentiate between open class and closed class of words.	2	CO2	U
vi)	For each sentence, identify whether the different meanings arise from structural ambiguity, semantic ambiguity or pragmatic ambiguity? 1. Time flies like an arrow. 2. Bat is flying.	2	CO5	Ap
vii)	Describe attachment for a fragment of English with example.	2	CO4	U
viii)	List applications of NLP.	2	CO6	U
Q.2	Solve any four questions out of six.	16		
i)	Explain role of machine learning in NLP.	4	CO1	U
ii)	Why POS tagging is hard? Discuss possible challenges faced while performing POS tagging.	4	CO3	U
iii)	Explain lexicon, lexeme and different types of relations that hold between Lexemes.	4	CO4	U
iv)	Explain working of rule based machine translation system.	4	CO6	U
v)	Explain syntactic and semantic constraints on co references.	4	CO5	U

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vi)	What is language model? Explain N gram model.	4	CO2	U
Q.3	Solve any two questions out of three.	16		
i)	Demonstrate any one anaphora resolution algorithm used to resolve the coreference issue with suitable example.	8	CO5	U
ii)	What is morphology? Why do we need to do Morphological Analysis? Explain derivational and inflectional morphology in detail with suitable example	8	CO2	U
iii)	What is semantic analysis? Discuss different semantic relationships between the words.	8	CO4	U
Q.4	Solve any two questions out of three.	16		
i)	What is stemming? Explain porter stemming algorithm in detail.	8	CO2	U
ii)	What is WSD? Explain dictionary based WSD.	8	CO4	U
iii)	Define discourse and Pragmatic analysis. Discuss reference resolution problem in detail. Explain Semantic Analysis.	8	CO5	U

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