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

Second Half - Winter Examination 2023

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

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

Date of Exam: 30-12-23 Duration: 02.30 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)	What is morphological analysis?	**2**	CO2	U
ii)	What is stemming, lemmatization?	**2**	CO2	U
iii)	What is Part of Speech Tagging?	**2**	CO3	U
iv)	What is semantic analysis? Why semantic analysis is difficult?	**2**	CO4	U
v)	Define discourse and pragmatic analysis.	**2**	CO5	U
vi)	List applications of Natural Language Processing.	**2**	CO1	U
vii)	State various stages in Natural Language Processing.	**2**	CO1	U
viii)	Differentiate between top-down and bottom-up parsing.	**2**	CO3	U
Q.2	**Solve any four questions out of six.**	**16**		
i)	Explain derivational and inflectional morphology in detail with suitable examples.	**4**	CO2	U
ii)	Explain lexicon, lexeme, and the different types of relations that hold between lexemes.	**4**	CO3	U
iii)	Explain knowledge-based WSD.	**4**	CO4	U
iv)	Explain the different ambiguities of NLP with the examples	4	CO4	U
v)	Explain N-gram Model.	**4**	CO3	U
vi)	What is WordNet? How is "sense" defined in WordNet? Explain with examples.	4	CO3	U

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Q.3	**Solve any two questions out of three.**	**16**		
i)	State the purpose of stemming? Explain Porter Stemmer's algorithm in detail	8	CO2	U
ii)	What is the need for preprocessing text data in natural language? Explain the steps of preprocessing with an example.	8	CO6	U
iii)	Explain Natural Language Understanding and Natural Language Generation	8	CO1	U
Q.4	**Solve any two questions out of three.**	**16**		
i)	What are the semantic constraints on co-reference ?	8	CO4	U
ii)	Design sentiment analysis system to track customer sentiments across Amazon. Clearly mention types of sentiment analysis, Challenges of sentiment analysis. List steps for your design.	**8**	CO6	Ap
iii)	Explain various Preferences in Pronoun Interpretation with suitable examples.	8	CO5	U

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