

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

April – May 2024		
Program: B.Tech EXTC Scheme : II		
Examination: LY Semester: VIII		
Course Code: EXDLC8031 and Course Name: Natural Language Processing		
Date of Exam: 18/05/2024	Duration: 2.5 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 four differences between Natural language and Artificial language.	2	CO1	U
ii)	Tokenize the following sentence. "I don't need any notes, as I study directly from books."	2	CO2	U
iii)	Write any 4 corpora used for morphological analysis.	2	CO2	U
iv)	Consider the input sentence "The opening ceremony was a grand success due to the presence of dignitaries." Label each word of the given sentence with its appropriate parts-of-speech.	2	CO3	An
v)	Identify the following symbols used in Regular expression. D, d, [0-9], ![0-9]	2	CO3	An
vi)	Give an example for Semantic ambiguity and explain.	2	CO4	U
vii)	What do you mean by corefer? Explain with example	2	CO5	U
viii)	List out the Named Entities in the following sentence. Justify your answer "India and Japan signed a treaty to improve Asia- Pacific trade in New Delhi"	2	CO6	A
Q.2	Solve any four questions out of six.	16		
i)	Analyze the opportunities and Challenges in Natural language Processing	4	CO1	An
ii)	How many 1 gram, 2 grams and 3grams present in the following sentence? Elaborate your answer. Ram and Shyam went to the café to have cold coffee on a sunny day.	4	CO2	An
iii)	What are open and closed classes? Give suitable examples	4	CO3	U
iv)	Evaluate the use of Hyponymy and Hypernymy with respect to Semantic analysis. Provide suitable examples	4	CO4	An

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v)	Analyze the Anaphora, Cataphora with respect to discourse analysis	4	CO5	An
vi)	Consider translation from English to Marathi. Illustrate various steps involved in the process.	4	CO6	An
Q.3	Solve any two questions out of three.	16		
i)	Analyze the Porter's model with various rules with examples. What are the other stemmers in use?	8	CO2	An
ii)	What are the important technical definitions to explain the word senses such as Homonymy, Polysemy, Antonymy, Synonymy, Meronymy, Hyponymy etc.	8	CO4	An
iii)	Evaluate the 5 important aspects of Pragmatics with suitable examples.	8	CO5	E
Q.4	Solve any two questions out of three.	16		
i)	What are different techniques or models used for syntax analysis? What is the role of HMM and Machine Learning in these techniques?	8	CO3	U
ii)	Apply the Penn tree bank to the following sentences to provide PoS tagging. Write the tuples formed. 1. The beautiful girl danced to the vibrant tune of drums. 2. The brave soldiers are fighting ferociously to win the war. 3. The only basket of fruits is sold for \$15. 4. A river larger than Nile is hardly found.	8	CO3	A
iii)	Apply your knowledge of NLP to design a Chatbot for a restaurant. Provide the front end and backend requirements and design a Q&A system for the same.	8	CO2	A
