

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

May-June 2025		
B. Tech Program: Information Technology Scheme: II		
Regular: LY Semester: VIII		
Course Code: and Course Name: Natural Language Processing		
Date of Exam: 21/05/2025	IT DLC 804	Duration: 02.5 Hours
Max. Marks: 60		

Instructions:

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

Q. No.	Question	Max. Marks	CO	BT level
Q 1	Solve any <b>two</b> questions out of three: (05 marks each)	10		
a)	Describe the stages and levels involved in a generic NLP system.		CO1	U
b)	Differentiate between inflectional and derivational morphology with examples.		CO2	U
c)	Explain any one method for POS tagging with example.		CO3	U
Q 2	Solve any <b>two</b> questions out of three: (05 marks each)	10		
a)	Analyze relationships between word meaning Homonymy, Polysemy, Antonymy, Hypernymy, Hyponymy, Meronymy explain it with suitable example.		CO4	An
b)	Differentiate between a dialogue and the monologue. Give relevant examples for each scenario		CO5	U
c)	List and explain any three real-world applications of NLP.		CO6	U
Q.3	Solve any <b>two</b> questions out of three. (10 marks each)	20		
a)	Discuss ambiguity in natural language and the challenges it presents for NLP systems.		CO1	U
b)	Explain POS tagging using HMM with respect to the given corpus and find the probabilities Corpus : Training data : Martin Justin can watch Will. Spot will watch martin. Will justin spot Martin. Martin will pat spot. Test data: Justin will park Will		CO3	U

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	Test data: Justin will park Will			
c)	Apply the concept of coreference and give the coreference chains with example.		CO5	A
Q.4	Solve any <b>two</b> questions out of three. (10 marks each)	20		
a)	Using an example, describe how N-grams can be utilized for spelling correction.		CO2	A
b)	Analyze the significance of Word Sense Disambiguation in NLP. Discuss dictionary based approach for WSD.		CO4	An
c)	Design a basic NLP pipeline for text summarization. Describe the steps involved with suitable techniques.		CO6	A