

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

Nov – Dec 2025

M.Tech. (Computer Engineering - Artificial Intelligence) Scheme II
Regular Examination: FY Semester: I

Course Code: PCEDLC1042 and Course Name: Natural Language Processing

Date of Exam: 14/01/2026

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 two questions out of three: (05 marks each)	10		
a)	Explain the various stages of Natural Language processing		CO1	U
b)	Explain inflectional morphology & Derivational morphology with suitable example.		CO2	U
c)	Explain HMM algorithm for POS tagging.		CO3	U
Q 2	Solve any two questions out of three: (05 marks each)	10		
a)	Explain the Dictionary-based approach for Word Sense Disambiguation (WSD) with a suitable example.		CO4	U
b)	Explain discourse resolution with an example		CO5	U
c)	Explain sentiment analysis with an example		CO6	U
Q.3	Solve any two questions out of three. (10 marks each)	20		
a)	Apply morphological parsing to analyze the structure of the word "unbelievable." Identify the root, prefix, suffix, and explain the role of each morpheme in forming the final word.		CO2	AP

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b)	Apply syntactic parsing to construct a complete sentence-level parse tree for the sentence: " <i>The boy saw the dog with a telescope.</i> "		CO3	AP
c)	Analyze the different types of semantic relations that exist among lexemes and their senses, using suitable examples. In your answer, compare and differentiate between relations such as synonymy, antonymy, hyponymy, meronymy, and polysemy.		CO4	AN
Q.4	Solve any two questions out of three. (10 marks each)			
a)	Analyze the structure and grammatical roles of Noun Phrases (NP), Verb Phrases (VP), and Prepositional Phrases (PP) in sentence construction. Illustrate your analysis with suitable examples showing how these phrases interact to form a complete syntactic structure.	20	CO4	AN
b)	Explain various Preferences in Pronoun Interpretation with suitable examples		CO5	AN
c)	What is text summarization? Explain the difference between extractive and abstractive summarization with examples.		CO6	U
