

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

Nov – Dec 2025

(B. Tech) Program: Computer Engineer Scheme I/II/IIB/III: II **B/II**

Regular Examination: LY Semester: VII

Course Code: **CEDLC7034** and Course Name: **Natural Language Processing**

Date of Exam: 25/11/2025

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. Mark	CO	BT level
Q 1	Solve any two questions out of three: (05 marks each)	10		
a)	Explain the important concepts for “Attachment for a fragment of English” in NLP.		CO4	U
b)	What is FST? Draw Finite State Automaton (FST) to recognize the words: cat, cats, cattle. (3+2)		CO2	Ap
c)	Describe how Context free grammar is used in NLP, and with the help of following CFG, Parse the sentence “ The old man finally kicked the bucket ” S -> NP VP; S -> VP; NP -> Det N; NP-> Det Adj N; VP -> V; VP -> V NP VP-> V AdvP		CO3	Ap
Q 2	Solve any two questions out of three: (05 marks each)	10		
a)	Differentiate Between Stemming and Lemmatization. Apply lemmatization to reduce the following words to their lemma: running, studies, better. (3+2)		CO2	Ap
b)	What is sequence labeling? Apply sequence labeling to classify each word in “ Pooja brought flowers for worship. ” as NNP (proper noun), VB (verb), NN (noun), etc. (1+4)		CO3	Ap
c)	Describe the term Pragmatics in NLP and Interpret the pragmatic meaning of the following sentences: a. “Can you pass the salt?” b. “Oh fantastic, another flat tire” c. “I’m so excited to do three hours of homework.”		CO5	U
Q.3	Solve any two questions out of three. (10 marks each)	20		
a)	Explain in brief different levels of NLP with suitable examples (phonology, morphology, syntax, semantics, discourse and pragmatics).(6Marks) Identify the ambiguities is following statements and justify it. (4 Marks)		CO1	U

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	1. Ram kissed his son, and so did Shyam. 2. Old men and women are moved to the hospital. 3. Margaret invited Susan for a visit, but she told her she had to go to work. 4. The fisherman went to the bank.			
b)	Apply POS tagging using HMM on the given corpus and find all the different types of probabilities. Draw HMM for it. 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	Ap
c)	Explain in detail any one algorithm from following and apply it on given ambiguous sentences to resolve the ambiguity. 1. Lesk's Algorithm or Resnik's Algorithm Sentence1: "He picked up the bat to play in the garden." Sentence2: "I went to the bank to deposit my money."		CO4	U, AP
Q.4	Solve any two questions out of three. (10 marks each)	20		
a)	Explain how N-gram model is used for spelling correction. (5Marks) Find the Minimum Edit Distance for the following words: (5Marks) "ELEPHANT" and "RELEVANT"		CO2	U, AP
b)	Explain the importance of reference resolution in NLP? (2 Marks) Discuss the different constraints used in resolving references. (4 Marks) Write any suitable algorithm for Anaphora Resolution.(4 Marks)		CO5	U
c)	Write a detailed note on any two Applications from following. (5 Marks each) a) Information Retrieval b) Machine translation c) Text summarization		CO6	U
